Late High School Dropouts: Characteristics, Experiences, and Changes Across Cohorts

Descriptive Analysis Report

NCES 2009-307

U.S. DEPARTMENT OF EDUCATION

ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

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Executive Summary

This report presents information about selected characteristics and experiences of high school sophomores in 2002 who subsequently dropped out of school. It also presents comparative data about late high school dropouts in the years 1982, 1992, and 2004. It is important to emphasize that the current findings address only dropping out in late high school and do not cover students who dropped out before the spring of 10th grade. For this reason, rates reported here will be lower than those based on the students' entire high school or earlier school career. In addition, because the dropout rate used in this report does not count alternative completers (e.g., recipients of the General Educational Development [GED] credential) as dropouts, this rate should not necessarily be interpreted as the inverse of an overall graduation rate.

Dropping out of high school is a major life event that severely impacts students' chances for subsequent educational and occupational opportunities (Catterall 1985; Natriello 1986; Rumberger 1987; Weis, Farrar, and Petrie 1989). Even if dropouts obtain an equivalency credential, their ability to benefit from additional postsecondary options may be limited (Cameron and Heckman 1993; Heckman and Rubinstein 2001; Boesel, Alsalam, and Smith 1998), though this may be true for some students more than others (Murnane, Willett, and Boudett 1997; Tyler, Murnane, and Willett 2000).

This report uses a time-specific status definition of a dropout, principally focusing on dropouts in the spring 2 years after their sophomore year, when they should have been seniors. Some individuals who are classified as students in the spring term of their senior year may have had past dropout events but reentered school in time to be counted as a spring-term student, and thus are not included as dropouts in this report. This definition differs from other dropout definitions in which students are tracked from the beginning of 9th grade onward. The definition used in this report is based on the availability of longitudinal cohort data from three National Center for Education Statistics (NCES) secondary longitudinal studies, which include a 10th-grade survey as a common component. Using this definition with the three NCES studies allows direct comparison of longitudinal cohort dropouts and dropout rates over time.

The report is provided with the caution that the relationships between student characteristics and dropping out are purely correlational and do not indicate causality. This report is descriptive in nature, and the results are from bivariate comparisons that test for differences between groups defined by student characteristics and dropout status. Complex interactions and relationships have not been explored, and relationships among the student variables may exist that have implications for understanding dropping out. Release of this descriptive report is intended to encourage more in-depth analyses of the relationship between these variables using more sophisticated statistical methods.

Data Sources and Reporting

Three data sources provide the information for the report: the High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/92), the sophomore cohort of the National Education Longitudinal Study of 1988 (NELS:88), and the sophomore cohort of the Education Longitudinal Study of 2002 (ELS:2002). In each case, high school students were

surveyed in the spring term of their sophomore year and then again 2 years later in the spring, when most of them were seniors.

For analysis of dropouts from the most recent period, ELS:2002 serves as the data source. ELS:2002 is a survey of high school students and their parents, teachers, and school administrators that began with a nationally representative group of 10th-graders in 2002 and included follow-ups in later years. Sophomores from 2002 and their status in 2004 are studied in this report.

For cross-cohort analysis, HS&B and NELS:88 are used along with ELS:2002. HS&B began in 1980 with a survey of both sophomores and seniors and followed them up in later years. Information from the HS&B base-year sophomore cohort (1980) and first follow-up (1982) is used for the current report. NELS:88 began with 8th-graders in 1988 and included follow-ups in later years as well. The original sample of 8th-graders was augmented with additional sample members in 1990 to obtain a fully representative sample of 10th-graders for that year, as some 10th-graders may not have been in 8th grade or otherwise available to sample 2 years previously (e.g., 9th-graders in 1988 who were subsequently retained in the 9th or 10th grades and thus were 10th-graders 2 years later when the NELS 8th-grade cohort reached the 10th grade, or 8th-graders who were out of the country but returned and were 10th-graders in 1990). The 10th-grade cohort and the 1992 follow-up of NELS:88 were used for this analysis.

Dropouts in this report are defined as sophomores who left school (and remained out of school) without receiving a regular diploma or earning a GED or equivalency credential by the spring 2 years later. Students who graduated from high school with regular or honors diplomas are called graduates, while graduates and those leaving high school with a GED or equivalency credential (including a certificate of attendance) are collectively called completers.

All estimates have been weighted to represent the population of high school sophomores in each cohort, and the estimated standard errors account for the complex survey designs of these studies. All comparisons reported in the text, unless explicitly noted, have met the criterion of statistical significance using a two-tailed Student's *t* test with an alpha level of 0.05. Adjustments for multiple comparisons were not included.

Students and Dropouts in 2004 and 2006

Chapter 1 presents the definition of dropping out used in this report and describes how information from ELS:2002 can be used to compare dropout status in 2004 to status in 2006. This analysis is based on a time frame of up to 2 years after typical high school completion.

High school completion for the ELS:2002 sophomore cohort was measured based on high school transcripts, which provide information about high school coursetaking and completion through summer 2004, and on the 2006 second follow-up, which provides information about high school enrollment and completion status as of 2006. This analysis found the following:

- Of those sophomores from 2002 who had been classified as dropouts in the spring term of 2004, twenty-seven percent were dropouts in 2006. Seventy-three percent would not be considered dropouts in 2006, a percentage that includes 38 percent who had earned a diploma or equivalency credential and an additional 35 percent who reported that they were working towards a diploma or equivalency credential.

Dropout Rates in 2004

Chapter 2 examines the dropout rates for the sophomore class of 2002 as of the spring term of 2004, broken down by background characteristics, teacher and parent expectations and evaluations, and academic achievement. Findings include the following:

Background Characteristics

- Males dropped out at higher rates than females: 7 percent of males were dropouts in the spring of 2004, compared to 6 percent of females.
- Asian/Pacific Islander students had the lowest dropout rates (3 percent) of all racial/ethnic groups (including Black, Hispanic, White, and more than one race students). Hispanic students and Black students had the highest dropout rates (11 percent and 10 percent, respectively) of all racial/ethnic groups. (American Indian rates are presented but not discussed due to unstable estimates.)
- Students who were older than their peers had higher dropout rates 2 years later than younger students did: of those who were 15 years old or younger as sophomores, 3 percent were dropouts 2 years later, compared to a 7 percent dropout rate for 16-year-old sophomores. Of the students ages 17 or older as sophomores, 28 percent were not enrolled 2 years later and had not completed a high school program or the equivalent.
- The dropout rates for those whose parents have a bachelor's degree (4 percent) or a graduate/professional degree (3 percent) are lower than the rates of those whose parents have some college education (6 percent) or a high school diploma or less (11 percent).
- Forty-eight percent of all dropouts come from families in the lowest quarter (bottom 25 percent) of the socioeconomic status distribution, and 77 percent of dropouts come from the lowest half of the socioeconomic status distribution. (Socioeconomic status is measured by a composite score of parents' occupational status, parents' education, and family income.)
- Sophomores attending public schools dropped out at higher rates than sophomores attending Catholic or other private schools: 7 percent of public school students were dropouts 2 years after their sophomore year, versus less than 1 percent of Catholic and 2 percent of other private school students.
- The dropout rate for those in the lowest poverty schools (schools in the lowest quarter of the distribution based on the percentage of students eligible for free or reduced-price lunch) was 4 percent, compared to 6 percent, 8 percent, and 11 percent for students attending schools in successively higher poverty levels.

Teacher Expectations and Ratings

- Thirty-four percent of sophomores whose 10th-grade English teacher expected them to drop out were dropouts 2 years later, while 2 percent of those whose English teachers thought they would get a bachelor's degree were dropouts 2 years later. Similarly, 32 percent of sophomores whose 10th-grade math teachers expected them

to drop out did so, compared to 2 percent of those whose math teachers thought they would get a bachelor's degree.

- Math and English teachers were more accurate in predicting who would drop out than students themselves were. For expectations of completing high school or some college, smaller percentages of students were dropouts whose math and English teachers expected them to complete these levels than of students who themselves expected to attain those levels. For example, among students whose math teachers expected them to attain some college education (short of a bachelor's degree), 6 percent were dropouts. Among students who themselves expected to attain only some college education, 12 percent were dropouts 2 years later.
- Four percent of sophomores whose math and English teachers agreed that the sophomore related well with others in class dropped out, compared to 18 percent of students where both the math and English teacher thought the student did not relate well to others.
- Sophomores whom both teachers identified as attentive in class "most of the time" or "all of the time" had lower dropout rates than sophomores whom one or neither teacher identified as attentive (2 percent compared to 9 and 17 percent, respectively).

Achievement

- Sophomores were given an exam (created specifically for ELS:2002) that assessed their reading and mathematics abilities. The continuous distribution of combined scores on the reading and mathematics tests was converted to equal-sized population quarters for analyses discussed in this report. Thirteen percent of sophomores in the lowest composite test quarter (the lowest 25 percent) were dropouts in spring 2004, compared to 6 percent of those in the middle two quarters and 1 percent of those in the top test quarter (the top 25 percent).

Experiences of Dropouts

Chapter 3 examines responses of dropouts to an ELS:2002 dropout-specific questionnaire administered in the spring of 2004. The questions asked about reasons for leaving school as well as school and parent interventions in dropout decisions. (Dropout reasons and school and parent responses to dropping out are based on a series of independent questions with yes/no response options, meaning that dropouts could have indicated multiple dropout reasons or school or parent interventions.) Findings include the following:

Reasons for Dropping Out

- Most dropouts (83 percent) listed a school-related (versus a family- or employment-related) reason for leaving. These reasons included missing too many school days, thinking it would be easier to get a GED, getting poor grades, and not liking school.
- Males dropped out of school for school-related reasons in greater percentages than females: 89 percent of males cited school-related reasons, compared to 75 percent of females. In particular, males left school for disciplinary reasons at higher rates than females. Twenty-two percent of males said they were suspended from school, and

15 percent of them said they were expelled. In comparison, 9 percent of females said they were suspended, and 3 percent said they were expelled.

- Forty-five percent of female dropouts left school for family reasons, compared to 25 percent of males. Twenty-eight percent of females left school due to pregnancy. Twelve percent of females cited marriage as a reason for dropping out.
- Among racial/ethnic groups, Hispanic dropouts left school for family-related reasons in greater percentages than White dropouts (44 percent versus 27 percent, respectively).

Parent and School Responses to Dropping Out

- Seventy-three percent of dropouts said their parents tried to talk them into staying, while 37 percent of them said their school tried to talk them into staying.
- Fifty-three percent of dropouts said that their parents offered to help them with personal problems, and 24 percent said that schools had made such an offer.
- Most of the dropouts (75 percent) never participated in any alternative program (such as dropout prevention, job placement assistance, or special vocational or technical skills training).

Plans and Current Work

- Thirty percent of dropouts did not know how far in school they expected to go. Dropouts chose "don't know" more than any other educational expectation, except for having "some college," where there was no statistically significant difference.
- Fifty percent of dropouts indicated they were employed as of the 2004 survey.

Changes in Dropout Rates Across Cohorts

Chapter 4 examines differences across cohorts in the overall population of sophomores, late high school dropout rates, and distribution of dropouts by various student characteristics, experiences, and achievement categories. The findings include the following:

- The overall late high school dropout rate was lower in 2004 than in 1982 (7 percent versus 11 percent, respectively) and lower in 1992 than in 1982 (6 percent versus 11 percent), but it showed no statistically significant difference in 2004 compared to 1992.
- As with the overall late high school dropout rate, the dropout rates for males and females were lower in 2004 (7 and 6 percent, respectively) than in 1982 (12 and 10 percent, respectively). The decline in dropout rates among males and females did not differ significantly from overall declines. Males had a higher dropout rate in both 1982 and 2004 than females did.
- In 1982, Black sophomores had a higher dropout rate (14 percent) than Asian/Pacific Islander (2 percent) and White (10 percent) sophomores. The pattern was the same in 2004: Black sophomores had a higher dropout rate (10 percent) than Asian/Pacific Islander (3 percent) and White (5 percent) sophomores.

- In 2004, Whites remained the largest proportion of dropouts at 44 percent, though they were no longer the majority as they were in 1992 (57 percent) and 1982 (67 percent).
- For those sophomores coming to class prepared (based on saying they "never" or "rarely" attended class without paper/pencil or books), dropout rates were lower in 1992 and 2004 (6 percent each) than in 1982 (8 percent). Dropout rates also declined for sophomores coming to class unprepared: for example, the rate was 9 percent in 2004 and 19 percent in 1982 for those saying they "often" or "sometimes" came to class without books.
- Dropout rates for students with less than 10 credits by the end of 10th grade were higher than for those with 10 or more credits earned by the end of 10th grade, in all cohorts. For example, in 2004, fifty-five percent of students who had earned 5–10 credits dropped out, compared to 4 percent of those who had earned at least 10 credits. The dropout rate for students with 5–10 credits increased from 21 percent in 1992 to 55 percent in 2004.
- Dropouts scored lower than non-dropouts on the mathematics assessment in all three cohorts, but the sophomore math test scores of dropouts were higher in 2004 than in 1982 (29 versus 24, respectively, with the range of possible scores 0 to 58). Non-dropout sophomore math test scores were higher in 2004 (38) than in 1982 (34).

Foreword

This report describes experiences, characteristics, and changes among spring 2004 high school dropouts from the Education Longitudinal Study of 2002 (ELS:2002), spring 1992 dropouts from the National Education Longitudinal Study of 1988 (NELS:88), and spring 1982 dropouts from the High School and Beyond Longitudinal Study (HS&B). All three studies were sponsored by the U.S. Department of Education, National Center for Education Statistics (NCES), and help fulfill a major purpose of NCES national education longitudinal studies, which is to provide comparative data at different points in time that are germane to education policy and permit examination of patterns relative to education, career development, and societal roles. The report provides timely information on the critical experience of dropping out and the changes in late high school dropout rates that have occurred over 3 decades.

We hope that the information provided in this report will be useful to a wide range of interested readers, including policymakers and educators. We further hope that the results reported here will encourage other researchers to use these longitudinal datasets for further investigations into key issues related to the high school experience.

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Acknowledgments

This report draws and builds on the work of many people over the past 26 years; we are only able to acknowledge a few here. The report partially updates an earlier NCES publication, *A Comparison of High School Dropout Rates in 1982 and 1992* (Kaufman, McMillen, and Sweet 1996). NCES has recently published a related research brief on academic credit accrual for dropouts surveyed in ELS:2002 (Hampden-Thompson, Warkentien, and Daniel 2009) that may be read in conjunction with the current report for further information.

Finally, we would like to note that the three authors contributed equally to the conceptualization, writing, and analysis of this report.

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Chapter 1. Introduction

This report presents detailed information about selected characteristics and experiences of late high school dropouts in 2004 and comparative data about late dropouts in 1982, 1992, and 2004. It is important to emphasize that the current findings address only dropping out in late high school and do not cover students who dropped out before the spring of 10th grade. For this reason, rates reported here will be lower than those based on the students' entire high school or earlier school career. In addition, because the dropout rate used in this report does not count alternative completers (e.g., recipients of the General Educational Development [GED] credential) as dropouts, this rate should not necessarily be interpreted as the inverse of an overall graduation rate.

Dropping out of high school is a major life event that severely impacts students' chances for subsequent educational and occupational opportunities (Catterall 1985; Natriello 1986; Rumberger 1987; Weis, Farrar, and Petrie 1989). Even if dropouts obtain an equivalency credential, their ability to benefit from additional postsecondary options may be limited (Cameron and Heckman 1993; Heckman and Rubinstein 2001; Boesel, Alsalam, and Smith 1998), though this may be true for some students more than others (Murnane, Willett, and Boudett 1997; Tyler, Murnane, and Willett 2000). If dropouts come back to high school to finish their diploma, the interruption of their education and career advancement may still affect their adult lives for some time (e.g., Grossman and Kaestner 1997). This report provides information on selected characteristics of dropouts and differences in the dropout population over time that may be useful for addressing high dropout rates and the negative consequences of dropping out.

The report is provided with the caution that the relationships between student characteristics and dropping out are purely correlational and do not indicate causality. This report is descriptive in nature, and the results are from bivariate comparisons that test for differences between groups defined by student characteristics and dropout status. Complex interactions and relationships have not been explored, and relationships among the student variables may exist that have implications for understanding dropping out. Release of this descriptive report is intended to encourage more in-depth analyses of the relationship between these variables using more sophisticated statistical methods.

1.1 Defining Dropouts and the Dropout Rate

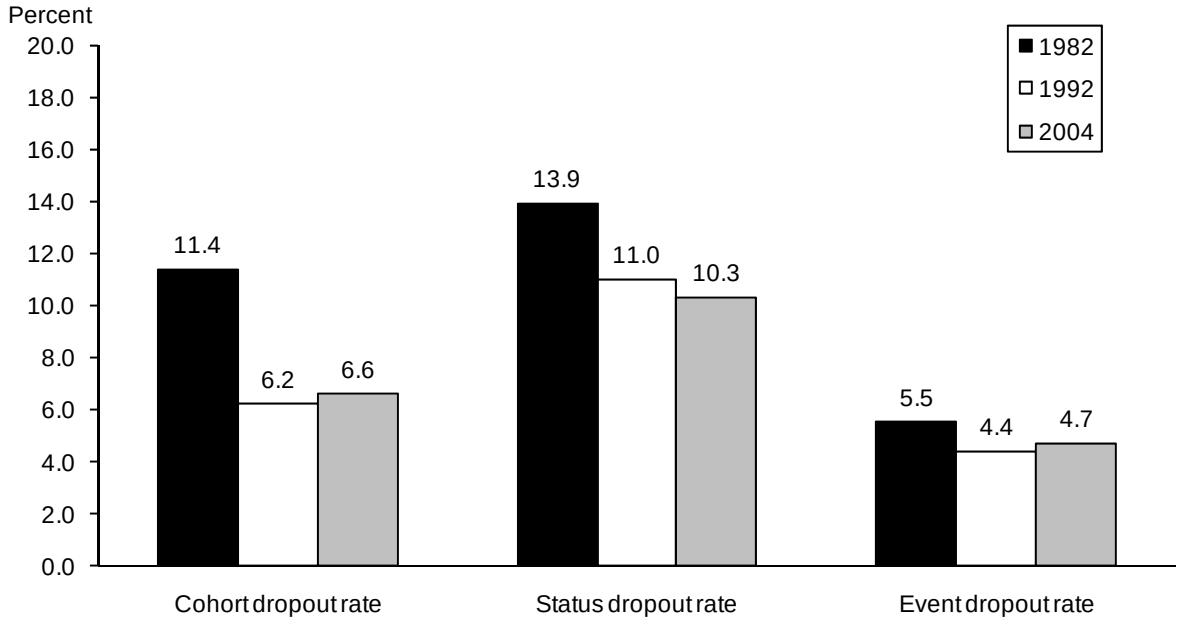
A number of concerns have been raised in recent years about the definition and enumeration of dropouts and graduates nationwide (Greene, Winters, and Swanson 2006; National Institute of Statistical Sciences (NISS)/Education Statistics Services Institute (ESSI) 2004; Seastrom et al. 2006a, 2006b; Swanson and Chaplin 2003; Warren and Halpern-Manners 2007). States and localities have varying ways of monitoring the educational progress of their students, including different ways of counting who is a dropout. (For example, GED recipients or other alternative completers such as certificate of attendance holders are sometimes considered dropouts, completers, or graduates.) National sources of information also have different definitions and source data for detailing dropout patterns. These differences in populations and definitions can lead to differences in reported rates and thus to different conclusions about dropout patterns.

For example, the U.S. Department of Education's National Center for Education Statistics (NCES) uses data from the U.S. Census Bureau's Current Population Survey (CPS, October supplement) to produce a "status" dropout measure for young adults. This dropout measure indicates the percentage of 16- to 24-year-olds in October of the survey year who have not completed high school and are not currently enrolled, regardless of when or even where (e.g., overseas) their education occurred. In contrast, NCES also publishes an "event dropout rate" using the CPS that measures the percentage of youth ages 15 through 24 in the United States who dropped out of grades 10–12 from either public or private schools in the 12 months between October of one year and the next (e.g., October 2004 to October 2005) (see Laird et al. 2007, appendix A–Technical Notes). A similar event dropout rate comes from NCES's Common Core of Data (CCD), a collection of data that comes from states and local school districts. These data measure the percentage of public high school students who were enrolled in the 9th through 12th grade at some time during the previous school year but were not enrolled at the beginning of the current school year and have not graduated from high school or completed a state or district approved program (Young 2003). These and other published dropout rates from NCES, the U.S. Census, or other sources do not match the current report's dropout rates in population base; definition of dropouts, including the grade levels from which the dropouts occurred; or relationship to graduation or completion rates. In addition, because dropouts are only measured over a 2-year period, and since some students remain in school or are working toward an equivalency credential and are therefore not dropouts, the dropout rates reported here should not be interpreted as the inverse of 4-year, on-time graduation rates.

In the current report, late dropouts are defined as spring-term high school sophomores who have not earned a diploma or equivalency credential and are not enrolled in school during the spring term 2 years later, a time point when most sophomores would have been high school seniors. This longitudinal cohort rate is different from the dropout status measure and event dropout rates. The cohort definition is used because the longitudinal studies used in this report (see section 1.2, Sources of Data) are designed around spring-term data collections and share a 10th-grade survey as a common component, enabling each of the groups of students to be followed over time to determine which students complete a diploma or equivalency credential within 2 years, which drop out, and which remain in school or are working on completion of an equivalency credential. This report is restricted to examining late high school dropping out and does not cover dropping out prior to the spring of 10th grade.

The potential effects of examining only late high school dropouts, and of using different data sources, can be observed by comparing the dropout rates reported in the current report with those published elsewhere. Figure 1 shows the late high school cohort dropout rate, as reported later in this text, as well as the CPS-based status dropout rate and the CPS-based event dropout rate, for the years 1982, 1992, and 2004. The status and event dropout rates (among other rates) are reported and explained by Laird et al. (2007).

Figure 1. Cohort, status, and event dropout rates: 1982, 1992, and 2004



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. For late high school cohort dropout rate: High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–1982"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–1992"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–2004." For status and event dropout rates: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1982, 1992, and 2004.

Figure 1 shows two important facts. First, though the late high school cohort rates are lower than the status dropout rates, the cohort rates are higher than the event dropout rates, in all 3 years. Again, this reflects different features of the data and calculations used to create each rate. For example, the status dropout rate is based on a broad age range of youth (16- to 24-year-olds) who do not hold a high school diploma or equivalency credential in any given year; this rate includes youth who were educated outside of the United States, in contrast to the late high school cohort rate, which includes only U.S. high schoolers. Similarly, the event dropout rate considers only dropouts from one year to the next, in contrast to the 2-year time span involved in the late high school cohort rate.

Second, the three rates show a similar set of intercohort differences. In each case, dropout rates declined between 1982 and 1992 but did not show any statistically significant difference between 1992 and 2004. The cohort and status rates show a decrease in the dropout rate when 1982 is compared to 2004, though the same comparison for the event dropout rate is not statistically significant. Both the similar cross-time results and the cross-rate comparisons support the conclusion that the late high school cohort rates used in this report are within the mainstream of current and historical dropout rates. (More information about the data and methods behind the late high school cohort rate are provided below and in appendix A.)

The late high school cohort rate can also be placed in the context of other cohort studies that include earlier-grade dropouts. The National Education Longitudinal Study of 1988 (NELS:88) began in the spring term of the 8th grade—two grades earlier than its successor study, the Education Longitudinal Study of 2002 (ELS:2002). While earlier-grade dropout rates may

conceivably have changed in the intervening years, NELS:88 findings suggest possible limitations of an approach that only shows factors related to the likelihood of dropping out in the last 2 years of high school. In NELS:88, the spring cohort dropout rate in the 2 years following 8th grade was 6.8 percent (McMillen and Kaufman 1996); as reported in figure 1, in the 2 years following 10th grade, it was 6.2 percent. There are, then, substantial numbers of both early (grades 8–10) and late (grades 10–12) dropouts (the cumulative spring cohort dropout rate was 11.6 percent between grades 8 and 12 and 11.0 percent between spring of grade 8 and the end of summer after grade 12) (McMillen and Kaufman 1996).

Analysis of NELS:88 data suggests that, while there are strong commonalities between the two groups (Stearns et al. 2007), there are also differences, such that conclusions reached about late dropouts may not fully apply to early dropouts and would qualify the portrait of the dropout population as a whole (Stearns and Glennie 2006). Goldschmidt and Wang (1999) found that the mix of student risk factors changes between early and late dropouts (in particular, family characteristics are more important for late dropouts). Still, echoing Rumberger (1995) and Jimerson, Anderson, and Whipple (2002), Goldschmidt and Wang found that being held back is the single strongest predictor of dropping out among their analysis sample and that its effect is consistent for both early and late dropouts.

While the effect of excluding pre-sophomore dropouts from the analysis cannot be studied with the most recent data, some of the implications of using the spring term instead of the fall after typical graduation as the enrollment status time point can be analyzed using high school transcript and second follow-up information from the study. These issues are thus discussed using ELS:2002 after a brief overview of all three data sources used in the report.

1.2 Sources of Data

Three NCES studies serve as the foundation for the estimates presented in this report. Here, we describe basic information about the study and about the analysis samples used for this report; more information on each study and the variables used from each can be found in appendix A—Technical Notes and Glossary.

For the most recent period of collected data, ELS:2002 provides information about sophomores in the spring of 2002 and dropout status 2 years later in the spring of 2004. ELS:2002 is a survey of high school students and their parents, teachers, and school administrators begun with a nationally representative group of 10th-graders in the spring of 2002. It was repeated with a first follow-up in the spring of 2004 (including additional sample members to make a representative sample of 12th-graders), transcript data collection soon thereafter, and a second follow-up in 2006, 2 years after most of the original sample members had graduated high school.

The cross-cohort analysis presented in chapter 4 employs two other survey sources. The first is the High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/92). This cohort of HS&B began in 1980 with a survey of both 1980 sophomores and seniors, and followed up with them in 1982, 1984, and 1986, as well as 1992 for sophomores. The second is NELS:88, which began with 8th-graders in 1988 and included follow-ups in 1990, 1992 (including a high school transcript collection), 1994, and 2000 (including a postsecondary transcript collection). The original sample of 8th-graders was augmented ("freshened") with additional sample members in 1990 to obtain a fully representative sample of 10th-graders for

that year, as some 8th-graders would have moved, fallen behind grades, or advanced extra grades. The 10th-grade cohort was used as the baseline here as well.[1]

The actual estimates for HS&B and NELS:88 are taken from an earlier NCES analysis, *A Comparison of High School Dropout Rates in 1982 and 1992* (Kaufman, McMillen, and Sweet 1996), for which this report serves as an update. Because of additional differences in the design and content of ELS:2002 as compared to HS&B and NELS:88, not all of the items from the previous report were deemed sufficiently consistent across years to include in the current report. Further discussion of this issue can be found in appendix A. All comparisons in this report are statistically significant; tests for statistical significance used Student's *t* statistic with a significance level of 0.05. Adjustments for multiple comparisons were not employed. See appendix A for more information.

1.3 Dropouts in 2004 and 2006

As noted, this report uses a definition of dropouts based on the student's status in the spring term of the typical student's senior year. This definition differs from a summer-inclusive definition of dropouts, in which students who earn a diploma or equivalency credential by August 30 are not counted as dropouts. When data are collected in the spring 2 years after the sophomore year, information about summer activities is not available. However, this section, using data from the ELS:2002 high school transcript data collection and the second follow-up with respondents conducted in 2006, explores differences in the two definitions and describes how spring-term dropouts fare within the next 2 years. Only this section of the report uses information about high school completion status up to 2 years after typical graduation (i.e., 4 years after sophomore year). In the rest of the report, dropouts are defined relative to the spring term 2 years after sophomore year.

Table 1 presents separate breakdowns of enrollment or completion status for spring-term 2004 and for 2 years later in 2006. For the spring-term definition of dropping out ("Spring 2004" columns of table 1), survey respondents are classified as other than dropouts if they were in school (including those who were home schooled or alternative program participants) or completed school early (including those who were GED recipients). This category comprises a large majority of respondents: 93 percent (table 1). Respondents were classified as dropouts if they had not been in school for 4 consecutive weeks or more and were not absent due to accident or illness, or if they had been in school less than 2 weeks after a period in which they had missed school for 4 or more consecutive weeks not due to accident or illness. This group included the remainder of respondents: 7 percent (table 1).

[1] A fourth longitudinal high school study, part of this series of studies, is the National Longitudinal Study of 1972 (NLS:72). NLS:72 is not used in the current report because it begins with a sample of high school seniors and therefore cannot identify dropouts 2 years after sophomore year.

Table 1. Percentage distribution of spring 2002 high school sophomores and their high school completion status, by student background characteristics: Spring 2004 and 2006

	Spring 2004		2006				
Characteristic	In school or early completer	Dropout	Summer 2004 or earlier graduate[1]	Fall 2004 or later graduate	GED/ certificate of attendance	Working toward diploma or equivalency	Dropout
Total	93.4	6.6	85.0	2.8	4.4	3.2	4.6
Sex							
Male	92.6	7.4	82.3	3.4	5.2	3.8	5.4
Female	94.1	5.9	87.8	2.2	3.6	2.6	3.8
Race/ethnicity[2]							
American Indian	95.3	4.7 !	71.9	2.8 !	9.3 !	4.4 !	11.7 !
Asian/Pacific Islander	96.8	3.2	90.2	2.6	2.2	2.6	2.4
Black	90.2	9.8	78.2	4.0	6.1	6.0	5.7
Hispanic	88.8	11.2	75.0	5.9	4.8	4.3	10.0
White	95.2	4.8	89.6	1.5	3.8	2.2	2.9
More than one race	92.0	8.0	80.2	4.9	5.8	4.0	5.0
Socioeconomic status quarter							
Lowest	87.6	12.4	74.2	4.3	6.0	5.9	9.6
Middle two	94.3	5.7	87.2	2.5	4.1	2.8	3.4
Highest	98.2	1.8	94.8	0.8	2.6	0.9	1.0
Composite test quarter							
Lowest	86.7	13.3	69.2	5.5	6.5	7.1	11.7
Middle two	93.8	6.2	87.1	2.3	4.6	2.6	3.3
Highest	98.8	1.2	96.8	0.9	1.6	0.3 !	0.4 !

! Interpret data with caution. Standard error is more than one third as large as estimate. See appendix A for more information about the American Indian dropout rates.

[1] Includes students with unknown graduation dates (less than 1 percent of the sample).

[2] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

NOTE: Detail may not sum to totals because of rounding. Spring 2004 status is based on student questionnaire responses and enrollment status checks during school year (F1DOSTAT). Summer/fall 2004 status is based on transcript information (F1RTROUT) and second follow-up questionnaire responses (F2A07).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Educational Longitudinal Study of 2002 (ELS:2002), "Base Year through Second Follow-up, Student Surveys and High School Transcripts Study, 2002–06."

Two years later, transcript information and second follow-up responses were used in conjunction with earlier-round information[2] to place respondents into more refined categories ("2006" columns of table 1). Those who attained a diploma or equivalency credential are grouped into one of three categories: (1) a summer (i.e., August or earlier) 2004 or earlier graduate; (2) fall 2004 or later graduate (including graduates with unknown graduation dates, less than 1 percent of the sample); and (3) a GED or certificate of attendance recipient. Those who had not yet attained a diploma or equivalency are grouped into one of two categories: (1) a student still in school and/or claiming to be working towards a diploma or equivalency

[2] For example, information on early graduates identified in the first follow-up of 2004. Such information was used to route students to appropriate questions in the second follow-up.

credential; and (2) a dropout. By 2006, approximately 5 percent of respondents were dropouts, a lower percentage than were identified as dropouts in the spring term of 2004.

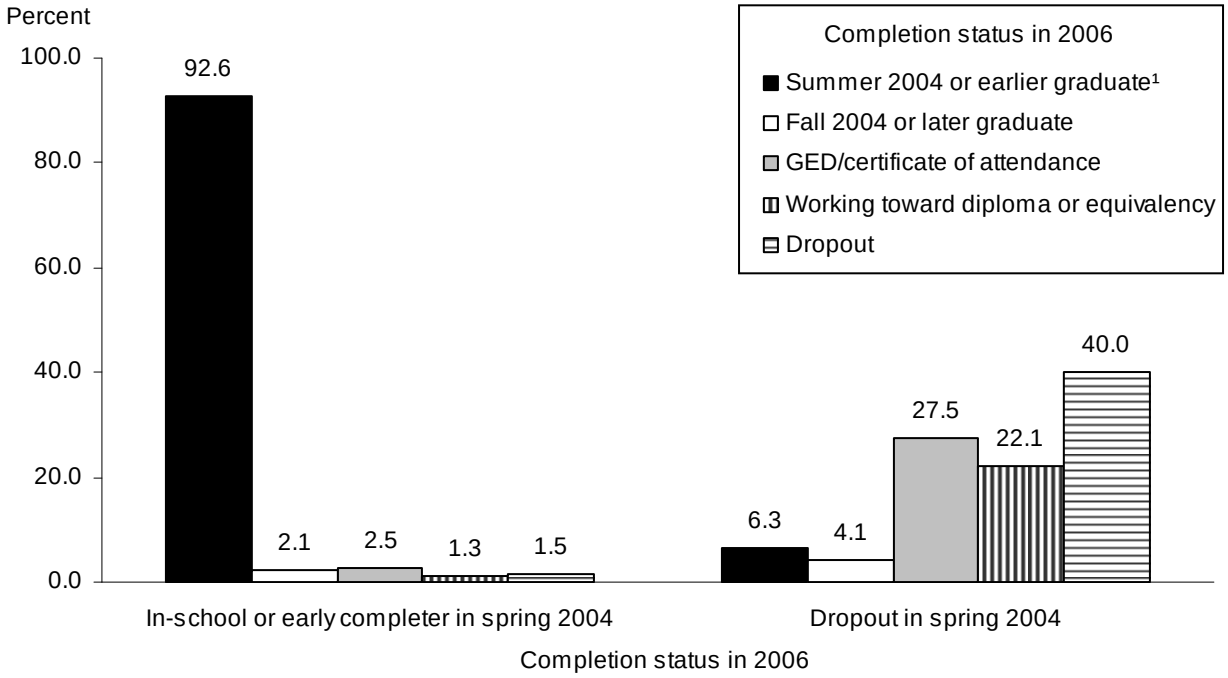
Table 1 shows enrollment and completion status by student subgroups. Both in the spring term of 2004 and in 2006, males had a higher dropout rate than females (7 versus 6 percent in 2004, and 5 versus 4 percent in 2006). Students classified as Black, Hispanic, or more than one race had higher dropout rates than their Asian/Pacific Islander or White peers in 2004 and in 2006. For example, the Hispanic dropout rate in the spring term of 2004 was 11 percent and in 2006 was 10 percent, compared to 5 percent (2004) and 3 percent (2006) for Whites. (American Indian rates are presented but not discussed due to unstable estimates; see appendix A.) Respondents who were in lower quarters of both the socioeconomic status distribution (SES, a composite of parental occupational status, parental education, and family income—see appendix A for more information) and 10th-grade composite test score distribution had higher dropout rates both in the spring term of 2004 and in 2006 than those in higher quarters.[3]

Figure 2 shows the cross-classification between these two status points (2004 and 2006). While most of those who were in school in 2004 received a diploma or equivalency by 2006, not all did, and some of those who were considered dropouts in 2004 did achieve this credential by 2006. Among those who had been defined as in-school or early completers during the spring term of 2004, ninety-three percent were later identified as graduates during or before the summer of 2004, with another 2 percent graduating in the fall of 2004 or later and 3 percent having earned a GED or certificate of attendance. One percent of the spring 2004 in-school students were working towards high school completion in 2006, while another 1.5 percent of spring 2004 students were dropouts in 2006.

For those who had been classified as dropouts in the spring term of 2004, some 6 percent became graduates by the end of the summer of 2004, while another 4 percent were fall 2004 or later graduates (figure 2). Twenty-eight percent of the spring-term 2004 dropouts earned a certificate of attendance or GED by 2006, while 22 percent were still working towards their high school diploma in 2006. Still, 40 percent of the spring-term 2004 dropouts were dropouts 2 years later.

[3] Composite test quarter (quarter of distribution formed from the combined reading and math test score) is used here; in chapter 2, both composite test quarter and separate measures for math and reading test quarters are presented. Since chapter 2 discusses achievement in more detail, the additional test information is appropriate. Here, the purpose is to provide an overview of some of the variation in completion status by student subgroups. In chapter 3, only math test quarter is presented, as only math performance is scored for cross-cohort comparability.

Figure 2. Percentage distribution of the 2006 completion status of spring 2002 high school sophomores who were either in-school/early completers or dropouts in spring 2004



[1] Includes students with unknown graduation dates (less than 1 percent of the sample).

NOTE: Detail may not sum to totals because of rounding. Spring 2004 status is based on student questionnaire responses and enrollment status checks during school year (F1DOSTAT). Summer/fall 2004 status is based on transcript information (F1RTROUT) and second follow-up questionnaire responses (F2A07, which was given to respondents based on first follow-up responses).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Educational Longitudinal Study of 2002 (ELS:2002), "Base Year Through Second Follow-up, Student Surveys and High School Transcripts Study, 2002–06."

1.4 Organization of This Report

The rest of the report considers three types of information about dropouts. Chapter 2 presents the distribution of in-school/early completers versus dropouts across an array of student characteristics, contextual factors, and prior achievement. Chapter 2 focuses on the extent to which dropout rates differ across subgroup categories. Chapter 3 examines items from a dropout-specific questionnaire administered in 2004; these items provide additional information about what kinds of reasons students had for dropping out and what kinds of interventions they received from parents and school officials before dropping out. Finally, chapter 4 focuses on changes in dropout rates and overall student and dropout population distributions in 1980–82, 1990–92, and 2002–04. This chapter provides information about observed declines in late high school dropout rates, along with further information about the changing composition and experiences of dropouts over time.

Chapter 2. Sophomore Characteristics and Experiences and High School Dropout Rates: 2004

This chapter uses data from the Education Longitudinal Study of 2002 (ELS:2002) to examine dropout rates and the distribution of dropouts across specific characteristics 2 years after sophomore year. For comparison purposes, percentage distributions of the full sophomore cohort are also provided in the tables. Information about the student and the school come from the base-year wave of ELS:2002, collected when students were sophomores in the spring of 2002. Dropout status comes from the first follow-up of data collected in the spring of 2004. Early graduates or alternative completers (i.e., recipients of the General Educational Development [GED] credential) and those still attending school in the spring of 2004 are combined into one category, referred to here as "students" for ease of expression. Most 2002 sophomores (93 percent) were students or early completers in spring 2004 (table 1). Seven percent of the sophomores were dropouts at that time. The following discussion compares dropouts in terms of demographic and family background characteristics, characteristics of the schools they attended, educational expectations they have of themselves and expectations significant others have of them, classroom behavior, and academic achievement. The primary focus of this discussion is on dropout rates, with distributions of dropouts providing information about what characteristics are most common among dropouts. Further information about these distributions can be found in chapter 4, which presents changes over time and the overall sophomore class distributions for 2002.

2.1 Demographic Characteristics

Table 2 reports individual characteristics of students and dropouts in 2004 by sex, race/ethnicity, age, and native language. Students reported this information about themselves in the base-year survey in 2002.

Males left school at a higher rate than females; 7 percent of males left school, compared to 6 percent of females. That translates into 56 percent of dropouts being male.

Among racial/ethnic groups, Asian/Pacific Islander students had lower dropout rates (3 percent) than every other group.[4] Both Hispanic students and Black students left school at higher rates (11 percent and 10 percent, respectively) than did Asian/Pacific Islander and White students. Five percent of White spring 2002 sophomores were dropouts in the spring of 2004. Whites had lower dropout rates than Blacks, Hispanics, and students of more than one race, and higher dropout rates than Asian/Pacific Islander students. Whites still accounted for the plurality of all dropouts (44 percent), followed by Black and Hispanic sophomores at 21 and 27 percent, respectively.

[4] Comparisons with American Indian students are not discussed due to unstable estimates. See appendix A for more information about the American Indian dropout rate.

Table 2. Dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by demographic characteristics: Spring 2004

Demographic characteristic	Dropout rate	Percent of dropouts	Percent of sophomores
Total	6.6	100.0	100.0
Sex			
Male	7.4	56.2	50.5
Female	5.9	43.8	49.6
Race/ethnicity[1]			
American Indian	4.7 !	0.7 !	1.0
Asian/Pacific Islander	3.2	2.0	4.2
Black	9.8	21.2	14.4
Hispanic	11.2	27.2	15.9
White	4.8	44.0	60.3
More than one race	8.0	4.9	4.3
Age[2]			
15 and below	2.6	18.2	44.2
16	6.7	52.0	49.0
17 and above	27.6	29.8	6.8
Native language			
Non-English	10.2	21.3	13.3
English	5.7	78.7	86.7

! Interpret data with caution. Standard error is more than one third as large as estimate.
[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.
[2] Age as calculated on March 1, 2002, which is the midpoint for data collection.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Dropout rates differed by the age of the respondent as well. Ages were calculated as of March 1, 2002, when the students were sophomores. Younger sophomores may have skipped a grade or started school as a child earlier than others, and older sophomores may have been held back or started school later. A plurality of sophomores (49 percent) were age 16, with 44 percent being 15 years old or younger and 7 percent being 17 years or older. Older students dropped out at higher rates than younger students: of those who were 15 years old or younger as sophomores, 3 percent were dropouts 2 years later, compared to a 7 percent dropout rate for 16-year-old sophomores (table 2). Of the students ages 17 or older as sophomores, 28 percent left school early. Among dropouts, 30 percent were ages 17 or older.

Finally, those whose native language was English stayed in school at higher rates than those for whom English was a second language. Six percent of those whose native language was English were dropouts in spring 2004, compared to 10 percent of those for whom English was a second language. This dropout rate for nonnative English speakers is higher than the overall rate of 7 percent. Most dropouts (79 percent) were native English speakers.

2.2 Family Characteristics

Table 3 shows dropout rates by various family characteristics: family composition, socioeconomic status (SES) quarter, parental education, and frequency of changing schools. Measures come from the parents' survey in 2002.

Table 3. Dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by family characteristics: Spring 2004

Family characteristic	Dropout rate	Percent of dropouts	Percent of sophomores
Family composition			
Mother and father	4.3	39.0	57.9
Mother or father and guardian	9.8	25.3	16.3
Single parent	9.0	31.1	21.8
Other[1]	7.3	4.6	4.0
Socioeconomic status quarter			
Lowest	12.4	47.6	24.3
Middle two	5.7	45.1	50.2
Highest	1.8	7.2	25.5
Parents' highest education level			
High school or less	11.2	47.4	26.7
Some college	5.8	31.9	35.0
Bachelor's degree	3.9	13.6	22.1
Graduate or professional degree	2.8	7.1	16.2
Frequency of changing schools			
0	4.0	33.9	45.6
1	5.2	22.4	23.1
2	6.2	13.7	11.9
3	7.5	13.0	9.3
4	9.4	9.2	5.3
5 or more times	8.5	7.7	4.9

[1] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Tenth-grade students who lived with both their mother and father were less likely to be school leavers 2 years later than those in every other family composition group. The dropout rate of students living with both their mother and father was 4 percent, compared to 9 percent for those with single parents, 10 percent for those living with their mother or father and a guardian, and 7 percent for those in other families.

SES quarter is based on an index score of combined family income, parental education, and parental occupation measures; quarter refers to the location of the student on the weighted index score distribution (i.e., bottom 25 percent, middle 25–50 percent, middle 50–75 percent, or top 75 percent—see appendix A for more information). Sophomores in lower SES quarters had

higher dropout rates: 12 percent of lowest SES quarter sophomores dropped out, compared to 6 and 2 percent of successively higher SES quarter groups. Fully 48 percent of all dropouts came from families in the lowest SES quarter, and 93 percent came from the bottom three-quarters of the SES distribution.

Parents' highest education level is the highest level reached by either parent (guardians not included). Sophomores whose parents had higher educational attainment stayed in school at higher rates than those whose parents had lower educational attainment (except for bachelor's versus advanced degree recipient categories). The dropout rates for those whose parents had a bachelor's degree (4 percent) or a graduate/professional degree (3 percent) were lower than the rates of those whose parents had some college education (6 percent) or a high school diploma or less (11 percent). Those whose parents had some college had lower dropout rates than those with a high school diploma or less. In addition, among dropouts, 47 percent had parents with only a high school degree or less, and 21 percent had parents with at least a bachelor's degree.

Finally, we examine the relationship between changing schools and dropping out. Parents were asked (while their children were sophomores) the number of times the student had changed schools since first grade, excluding promotions from elementary school to middle school or from middle school to high school. Students may have changed schools for a variety of reasons: because of their parents' job, moving to live with a different parent or guardian, switching schools to find a more suitable academic or social environment, or external changes in school attendance boundaries. Table 3 shows that sophomores who changed schools more often dropped out at higher rates. For example, the dropout rate for those who never changed schools is 4 percent, compared to between 6 and 9 percent for those changing schools 2 to 5 or more times.

2.3 School Characteristics

Table 4 reports dropout rates for students by characteristics of the schools they attended in 10^{th} grade. The table shows the dropout rates and distribution of dropouts by school sector, the percentage of the student body that was minority, and the percentage of the student body that was eligible for free or reduced-price lunch.

Table 4. Dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by characteristics of school attended: Spring 2004

School characteristic	Dropout rate	Percent of dropouts	Percent of sophomores
School sector			
Public	7.1	98.4	92.4
Catholic	0.7	0.4	4.3
Other private	2.3 !	1.2	3.4
Percent minority			
Lowest quarter	4.0	15.3	25.1
Second quarter	5.4	20.2	24.9
Third quarter	6.5	24.6	25.1
Highest quarter	10.5	39.8	24.9
Percentage of school population receiving free or reduced-price lunch			
Lowest quarter	4.0	14.0	25.0
Second quarter	6.3	22.2	25.0
Third quarter	7.6	26.6	25.0
Highest quarter	10.7	37.3	24.9

! Interpret data with caution. Standard error is more than one third as large as estimate.
NOTE: Detail may not sum to totals because of rounding. School information is based on 10th-grade school attended.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

With respect to school sector, sophomores attending public schools dropped out in greater proportions than sophomores attending Catholic or other private schools: 7 percent of public school students were dropouts 2 years after their sophomore year, versus less than 1 percent of Catholic and 2 percent of other private school students. Though 92 percent of sophomores attended public schools, 98 percent of all dropouts attended public schools.

Schools with a higher percentage of minority students had a higher dropout rate. The distribution of percent minority was divided into four equal-sized groups or quarters. From low to high, the quarters correspond to percent minority of 0–9 percent minority, 10–25 percent minority, 26–57 percent minority, and 58 percent or more minority. Those students attending schools in the top quarter of the distribution of percent minority had higher dropout rates than every other group (11 percent, compared to 7 percent of those in the second quarter, 5 percent in the third quarter, and 4 percent in the fourth quarter of percent minority schools). Students who subsequently dropped out attended the highest quarter of percent minority schools at a greater rate (40 percent) than they attended schools in other quarter groups. This is a higher rate than among all sophomores (25 percent).

Next, dropout rates are reported by the percentage of students who were eligible for free or reduced-price lunch (FRPL). This measure serves as a proxy for the overall poverty level of the student body; schools are grouped into four equal-size categories based on the weighted distribution of the percentage of FRPL-eligible students: from low to high, the quarters generally correspond to 0–9 percent FRPL, 10–18 percent FRPL, 19–34 percent FRPL, and 34 percent or more FRPL. The dropout rate increased as the school poverty level increased. Sophomores attending the lowest quarter of percent FRPL schools had a lower dropout rate over the next 2

years than those in each of the less affluent schools. The dropout rate for those in the lowest quarter of percent FRPL schools was 4 percent, compared to 6 percent, 8 percent, and 11 percent for students attending schools with successively higher poverty levels. A greater percentage of dropouts (37 percent) attended the highest quarter of percent FRPL schools than any other single quarter.

2.4 Educational Expectations

The next section of this report examines the relationship between educational expectations and dropping out 2 years later. When students were in 10th grade, they answered questions about how far they expected to go in school. In separate surveys, their parents and their 10th-grade English and math teachers stated how far they expected the student would go in school. In each case, possible answers were coded into five categories: less than high school, high school, some college, bachelor's degree, and graduate or professional degree.

At every level (except less than high school compared to high school diploma expectations), higher student educational expectation categories had lower dropout rates (table 5). Of sophomores who thought they would complete high school but not have postsecondary education, 21 percent dropped out, compared to 12 percent of those who planned to get some college, 4 percent of those who planned to get a bachelor's degree, and 2 percent of those who planned to attain a graduate or professional degree. Ninety-five percent of dropouts had expected as sophomores that they would get at least a high school diploma.

This comparison is repeated for parental expectations. Almost all parents (99 percent) thought that their children would finish high school or higher. Of those whose parents thought their student would have no school beyond high school, 17 percent dropped out, compared to 13 percent of those whose parents thought they would have some college, 6 percent of those whose parents thought they would get a bachelor's degree, and 5 percent of those whose parents thought they would get a graduate or professional degree. As with student expectations, parental expectations for their sophomores were uniformly high even for sophomores who were dropouts 2 years later: 100 percent of dropouts' parents expected their sophomore to at least finish high school.

Finally, the last two distributions of table 5 report dropout rates based on the expectations of student's 10th-grade English and math teachers. One 10th-grade English and one 10th-grade math teacher of each student responded to a questionnaire. Thirty-four percent of those whose 10th-grade English teacher expected them to drop out did leave school, while 2 percent of those whose English teacher thought they would get a bachelor's degree left school. Similarly, 32 percent of those whose 10th-grade math teacher expected them to drop out were dropouts 2 years later, compared to 2 percent of those whose math teacher thought they would get a bachelor's degree.

Thus, teachers were somewhat more accurate in predicting high school dropout than were students themselves. Among sophomores whose math teachers expected the student to not complete high school, 32 percent actually dropped out. Among English sophomores whose English teachers expected the student to not complete high school, 34 percent actually dropped out. Among students who themselves expected to not finish high school, 30 percent dropped out.

Table 5. Dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by expectations for student's educational attainment: Spring 2004

Source and educational expectation	Dropout rate	Percent of dropouts	Percent of sophomores
Student's expectations			
Less than high school	30.3	5.0	1.0
High school	21.4	27.5	7.6
Some college	11.9	22.9	11.3
Bachelor's degree	4.2	28.7	40.0
Graduate or professional degree	2.4	16.0	40.8
Parent's expectations for student			
Less than high school	‡	‡	‡
High school	17.1	9.5	3.7
Some college	13.3	19.2	9.6
Bachelor's degree	6.3	43.4	45.3
Graduate or professional degree	4.5	27.9	41.3
English teacher's expectations for student			
Less than high school	34.2	16.5	2.9
High school	15.4	44.9	17.4
Some college	5.8	26.7	27.1
Bachelor's degree	1.6	10.6	38.6
Graduate or professional degree	0.5 !	1.3 !	14.1
Math teacher's expectations for student			
Less than high school	31.9	11.6	2.1
High school	14.2	46.3	18.5
Some college	6.3	30.1	27.2
Bachelor's degree	1.7	11.7	39.7
Graduate or professional degree	0.2 !	0.3 !	12.5

! Interpret data with caution. Standard error is more than one third as large as estimate.
‡ Does not meet reporting standards.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

2.5 Teacher Perceptions of Student Behavior

Table 6 examines teacher ratings of students' behavior. One 10th-grade English and one 10th-grade math teacher of each student answered questions about whether the student relates well with others, is excessively passive or withdrawn, or talks with the teacher outside of class. Results show dropout status based on whether both teachers agreed with each statement, only one teacher agreed, or both disagreed. In addition, teachers were asked how often the student was attentive or disruptive in class; these responses were coded in terms of one or both teachers saying the student was attentive most or all of the time or was never/rarely disruptive (to keep the variables in a uniform direction for comparisons).

Table 6. Dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by English and math teachers' ratings: Spring 2004

Teacher's rating of student	Dropout rate	Percent of dropouts	Percent of sophomores
Relates well to others			
Both say no	17.8	13.3	4.3
One says yes	10.8	29.8	15.9
Both say yes	4.1	56.8	79.8
Passive/withdrawn			
Both say no	4.9	63.5	77.8
One says yes	9.1	28.1	18.2
Both say yes	12.6	8.5	4.0
Talks to teacher outside of class			
Both say no	7.4	53.6	42.9
One says yes	5.3	34.5	39.0
Both say yes	3.9	11.9	18.1
Attentive in class			
Both say no	16.7	36.6	12.7
One says most/all of time	8.7	41.0	27.3
Both say most/all of time	2.2	22.4	60.0
Disruptive in class			
Both say yes	13.7	15.7	6.9
One says never/rarely	8.6	28.0	19.2
Both say never/rarely	4.5	56.3	73.9

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Where both teachers agreed that the sophomore related well with others in class, the dropout rate was 4 percent, compared to 18 percent of students where both teachers thought the student did not relate well to others and 11 percent where only one teacher thought so. Likewise, a higher percentage of sophomores (13 percent) whom both teachers identified as passive or withdrawn in class were spring 2004 dropouts than sophomores whom one or neither teacher identified as such (9 and 5 percent dropping out, respectively). In terms of talking to the math or English teacher outside of class (these conversations could pertain to school work, the student's aspirations, or other personal matters), the finding is similar: sophomores who talked to at least one of the two teachers outside of class dropped out at a lower rate (5 percent) than those who did not talk with either of these teachers outside of class (7 percent dropping out). Further, both teachers reported that students did not talk to them outside of class for 43 percent of all sophomores and for 54 percent of dropouts (table 6).

Regarding the frequency of attentiveness and disruptiveness, sophomores whom both teachers identified as attentive in class "most of the time" or "all of the time" had a lower dropout rate than those whom one or neither teacher identified as such (2 percent compared to 9 and 17 percent, respectively). In addition, while 13 percent of sophomores had both teachers reporting that they were never or rarely attentive in class, 37 percent of eventual dropouts had

such a report from both teachers surveyed (table 6). Finally, when both teachers thought the student was disruptive, 14 percent were dropouts 2 years later, compared to 9 percent when only one teacher thought the student was disruptive and 5 percent when neither teacher said the student was disruptive most or all of the time. Sixteen percent of dropouts had both teachers reporting problems with disruptiveness, compared to 7 percent among all sophomores.

2.6 Academic Preparedness

This section focuses on indicators of the students' academic preparedness. All measures come from the 2002 data collection, when the students were in 10th grade. Measures include academic preparation and academic engagement, each based on multiple variables as reported by the student; weekly hours of homework the student reported; and parental reports of the number of grades the student had repeated, whether the student had a disability, and whether the student had behavior problems at school.

Table 7 first shows categories of academic preparation and academic engagement, ordered from low to high. The academic preparation measure is a summary of student responses to questions about their preparation for class, specifically how often he or she went to class without pencil or paper, without books, or without completed homework. The academic engagement measure summed student responses to questions about behavior and attitudes in school. Specifically, the student stated how often he or she was tardy, cut class, or was absent in the first semester of that school year, and answered a question about whether or not classes are interesting and challenging. For both measures, sums at or below the 25th percentile distribution point were categorized as low, 25th to the 74th percentile scores were categorized as middle, and scores at or above the 75th percentile were categorized as high. See appendix A for more information.

Sophomores in the lower categories of academic preparation and engagement were spring 2004 dropouts at higher rates than sophomores in higher categories. Nine percent of sophomores in the low preparation category were dropouts in the spring of 2004, compared to 6 and 4 percent in the middle and high preparation category, respectively. Similarly, 12 percent of sophomores in the low engagement category were spring 2004 dropouts, versus 4 and 3 percent in the middle and high preparation category, respectively. In both the case of preparation and engagement, a majority of dropouts (58 and 62 percent, respectively) had low scores on the indices for preparation or engagement while sophomores.

In terms of time spent on homework, those who reported doing no homework or 1–2 hours of homework each week were dropouts 2 years later in greater proportions than those who reported doing more homework. The dropout rate was 12 percent for those reporting 0 hours of homework and 8 percent for those reporting 1–2 hours per week, compared to 6 percent for those doing 3–5 hours each week and 3 percent each for 6–10 or 11 or more hours per week.

Table 7. Dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by school readiness indicators: Spring 2004

School readiness indicator	Dropout rate	Percent of dropouts	Percent of sophomores
Academic preparation index[1]			
Low	8.7	57.8	41.0
Middle	5.8	18.0	18.9
High	3.7	24.2	40.1
Academic engagement index[2]			
Low	12.1	62.4	32.3
Middle	4.5	23.4	32.8
High	2.5	14.1	34.9
Hours of homework per week[3]			
0	12.3	14.5	7.3
1–2	8.4	42.4	31.4
3–5	5.6	23.3	25.9
6–10	3.4	11.3	20.5
11 or more	3.5	8.5	14.9
Parent-reported number of grades repeated[4]			
0	3.7	60.2	87.8
1	16.6	34.9	11.3
2 or more	28.6	4.9	0.9
Parent-perceived disability			
No	4.7	77.0	87.9
Yes	10.1	23.0	12.1
Parent-perceived behavior problem at school			
No	4.4	74.9	92.3
Yes	17.4	25.1	7.7

[1] Academic preparation categorization is based on the 25th and 75th percentiles of an index measure. The index was based on the summed responses to three variables: How often student goes to class without pencil or paper, without books, and without homework done. Each measure had four response options of never, seldom, often, and usually, and numerical values going from 4 to 1, respectively (reverse coded). Range of this summed variable is 3–12, with low category being values of 3–9, middle being 10, and high being 11–12. See appendix A, section A.5.3, for more information.

[2] Academic engagement categorization is based on the 25th and 75th percentiles of an index measure. The index was based on the summed responses to four variables: During the first semester or term of 10th grade, how often student was tardy, cuts class, is absent; and agreement or disagreement with statement that classes are interesting and challenging. For "how often" variables, response options were "never," 1–2 times, 3–6 times, 7–9 times, and 10 or more times; for statement of agreement variable, responses were "strongly disagree," "disagree," "agree," and "strongly disagree." Numerical values were assigned from 4 to 1 (reverse coded) for "how often" variables and 1 to 5 for statement of agreement variable. Range of this summed variable is 4–19, with low category being values of 4–13, middle being 14–15, and high being 16–19. See appendix A, section A.5.3, for more information.

[3] Reflects hours of homework done out of school.

[4] Number of grades repeated before 11th grade.

NOTE: Detail may not sum to totals because of rounding. All variables except number of grades repeated, disability, and behavior problem at school are based on student reports.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Dropout rates also differed by the number of grades repeated. The dropout rate for sophomore cohort members was 4 percent for those who had not repeated a grade, compared to 17 percent for those who repeated one grade and 29 percent for those who had repeated two or more grades. Nevertheless, 60 percent of dropouts had not repeated a grade, and 5 percent of dropouts had repeated two or more grades (compared to less than 1 percent of all sophomores who repeated two or more grades).

Prior studies have reported on the high school completion rates of students with disabilities (U.S. Department of Education 2005). In ELS:2002, parents reported whether the sophomore had a "physical, emotional, or learning disability." Among sophomores reported by their parents as having a disability, 10 percent left school, compared to 5 percent of those reported as having no disability. Twenty-three percent of dropouts had a parent-reported disability.

A higher dropout rate was observed for sophomores whose parents reported the student as having a behavior problem at school. Seventeen percent of those whose parents thought they had a behavior problem in 2002 were dropouts in spring 2004, compared to 4 percent of those whose parents did not perceive a behavior problem. Twenty-five percent of dropouts had a parent-perceived behavior problem at school.

2.7 Academic Achievement

Overall, sophomores entered 10th grade with a 9th-grade grade point average (GPA, based on transcripts) of 2.6. Among dropouts, however, the average 9th-grade GPA was 1.6, or below a C. Table 8 reports additional factors related to the academic achievement of high school dropouts in 2002. In this table, academic achievement is indicated by the following measures: 10th-grade scores on the composite, math, and reading tests, and the number of credits earned by the end of 10th grade (categorized).[5]

The first three variables show dropout rates by quarters of the composite achievement (reading plus math) test, the math test, and the reading test. For each test, those in higher test score quarters stayed in school at higher rates than those in lower test score quarters. For example, 13 percent of sophomores in the lowest composite test quarter were dropouts in spring 2004, compared to 6 percent of those in the middle two quarters and 1 percent of those in the top test quarter. Five percent of 2004 dropouts had scored in the highest quarter of the composite or math tests in 2002, and 7 percent scored in the highest quarter of the reading test.

[5] Credits earned include courses taken through August in the summer following sophomore year.

Table 8. Dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by academic achievement indicators: Spring 2004

Achievement characteristic	Dropout rate	Percent of dropouts	Percent of sophomores
Composite achievement test quarter			
Lowest	13.3	47.4	23.6
Middle two	6.2	48.0	51.1
Highest	1.2	4.6	25.4
Math test quarter			
Lowest	13.6	48.4	23.6
Middle two	6.1	46.8	51.0
Highest	1.2	4.8	25.4
Reading test quarter			
Lowest	12.4	44.7	23.9
Middle two	6.3	48.3	50.8
Highest	1.8	7.0	25.2
High school credits earned by spring of sophomore year			
Below 5	53.2	4.8	0.5
5 to less than 10	54.8	26.3	3.0
10 or more	4.2	69.0	96.5

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002," "First Follow-up, 2004," and "High School Transcript Study, 2004."

The number of credits earned is shown last (table 8). Those with 10 or more credits stayed in school at higher rates than those with less than 10 credits: the dropout rate for those with 10 or more credits was 4 percent, compared to 55 percent of those with 5–10 credits and 53 percent of those with fewer than 5 credits. While 96.5 percent of all sophomores obtained 10 or more credits by the end of their sophomore year, 69 percent of dropouts had done so, indicating that 31 percent of eventual dropouts had been behind in their credit accrual before the last 2 years of high school. See chapter 4 and the cross-cohort analysis for information on how these credit counts have changed over time.

Chapter 3. Experiences of High School Dropouts

This chapter explores the experiences and perspectives of those who were sophomores in 2002 and had left school by the spring of 2004. Some of these experiences occurred at the time the dropout left school: for example, the reasons for the decision to leave and the responses of their parents and school to that decision. Other perspectives and experiences pertained to 2004, such as their expectations for educational attainment and their employment status. All responses (except sex and race/ethnicity classification) come from questions that were only asked of those not currently in school in 2004.

3.1 Reasons for Leaving School

Dropouts responded to a series of questions about their reasons for leaving school. The dropouts answered yes or no to 16 items relating to school, family, or employment reasons for leaving school; dropouts could and usually did answer yes to more than one item. These results are listed in table 9 in order of their overall popularity and by sex.

Most dropouts listed school-related reasons for leaving: 83 percent of dropouts left for one or more of these reasons, which included missing too many school days, thinking it would be easier to get a General Educational Development (GED) credential, getting poor grades, and not liking school. Eighty-nine percent of males cited school-related reasons for leaving, compared to 75 percent of females. Boys and girls differed in leaving for disciplinary problems. Twenty-three percent of males said they were suspended from school, and 15 percent of them said they were expelled. Nine percent of females said they were suspended, and 3 percent said they were expelled. The impact of changing schools differed by gender. Fifteen percent of males said they left school because they had changed schools and did not like the new one, while 7 percent of females said so.

Dropouts also listed reasons for leaving that were external to the school setting: family-related reasons and employment-related reasons. Thirty-four percent of dropouts listed family-related reasons, including pregnancy, supporting family members, caring for a family member, becoming a parent, and getting married. Forty-five percent of female dropouts left school for family-related reasons, compared to 25 percent of males. Twenty-eight percent of females left school due to pregnancy. Twenty-five percent of females cited becoming a parent as a reason for dropping out, while 12 percent cited marriage. The comparable percentages for males were 6 percent and 3 percent.

Thirty-five percent of dropouts cited employment-related reasons for leaving school, including getting a job and being unable to work and attend school at the same time. Forty-one percent of males stated employment reasons for leaving school, compared to 28 percent of females.

Table 9. Percentage of dropouts from the high school sophomore class of 2002 reporting given reason for leaving school, by sex: Spring 2004

Reason for leaving school	Overall	Male	Female
School-related reasons			
Any school-related reason	82.8	89.1	74.6
Missed too many school days	43.5	44.1	42.7
Thought it would be easier to get GED	40.5	41.5	39.1
Was getting poor grades/failing school	38.0	40.1	35.2
Did not like school	36.6	40.1	32.0
Could not keep up with schoolwork	32.1	29.7	35.3
Thought could not complete course requirements	25.6	22.9	29.0
Could not get along with teachers	25.0	27.7	21.6
Did not feel belonged there	19.9	19.9	19.9
Could not get along with other students	18.7	17.7	20.1
Was suspended	16.9	22.9	9.0
Changed schools and did not like new one	11.2	14.5	7.0
Thought would fail competency test	10.5	9.0	12.3
Did not feel safe	10.0	10.5	9.5
Was expelled	9.9	15.2	3.0 !
Family-related reasons			
Any family-related reason	34.0	25.2	45.4
Was pregnant	27.8	†	27.8
Had to support family	20.0	17.6	23.0
To care for a member of the family	15.5	15.2	16.0
Became a father/mother of a baby	14.4	6.2	25.0
Married or planned to get married	6.8	3.0 !	11.6
Employment-related reasons			
Any employment-related reason	35.0	40.7	27.7
Got a job	27.8	33.5	20.3
Could not work at same time	21.7	23.1	19.9

† Not applicable.

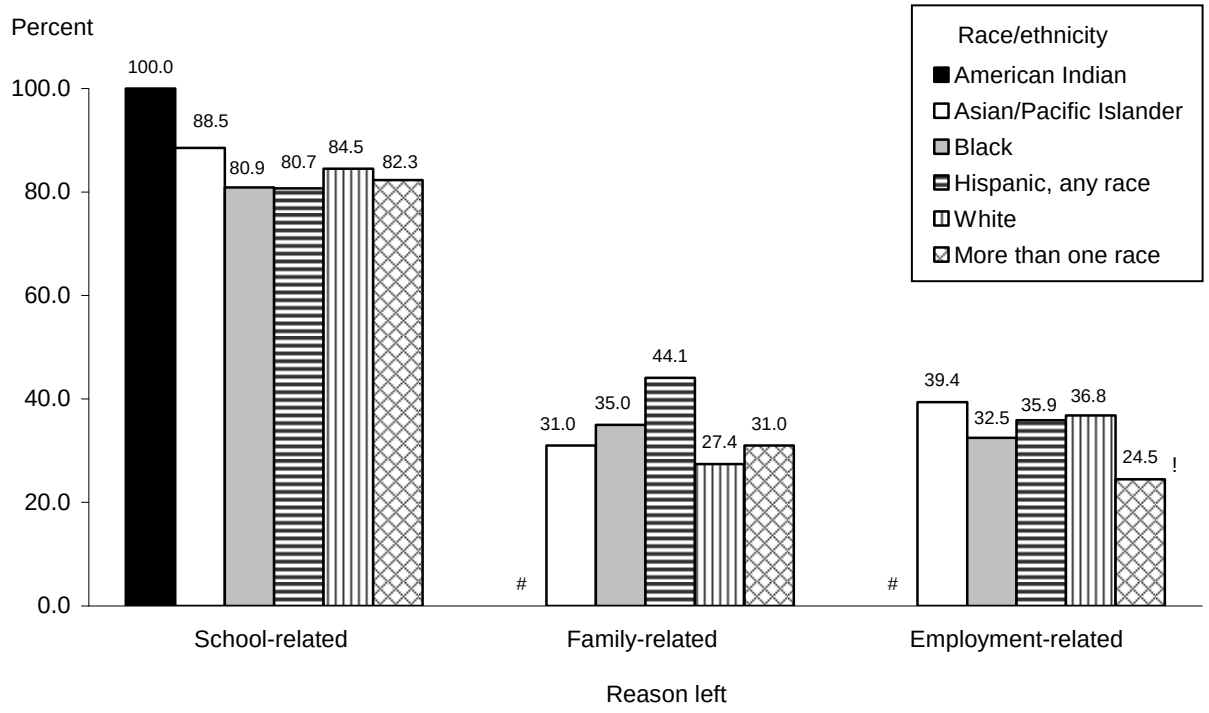
! Interpret data with caution. Standard error is more than one third the size of the estimate.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."

Figure 3 depicts the percentages of those stating any school-, family-, or employment-related reason for leaving school, by race/ethnicity. This figure addresses two related questions: first, within each racial group, what reasons for leaving school predominate? Second, did members of any group cite any category of reasons for leaving school more often than other groups?

Figure 3. Percentage of dropouts from the high school sophomore class of 2002 reporting reasons for leaving school, by race/ethnicity: Spring 2004



Rounds to zero (applies to American Indian dropouts).
! Interpret data with caution. Standard error is more than one third as large as estimate.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."

For the first question about the prevalence of stated reasons within groups, overall, each racial/ethnic subset of dropouts stated school-related reasons for leaving more frequently than employment-related or family-related reasons. In each group, at least 80 percent of dropouts listed school-related reasons. The 80 percent of dropouts listing school-related reasons for leaving may in part result from the greater number of response options offered under this category (questions were not organized in these categories).

The second question (whether members of any ethnic/racial group were more likely than other groups to cite items within a list of reasons) yields few statistically significant patterns. The only statistically significant group difference observed in reasons given is between Hispanic and White dropouts; 44 percent of Hispanic dropouts left school for family-related reasons, compared to 27 percent of Whites.

3.2 Responses of Parents and Schools

Dropouts replied to a series of questions about the ways in which their parents and school personnel responded when they left school. The survey listed 13 possible parental responses and 12 possible school responses. Almost all dropouts (95 percent) reported a parental response, and 80 percent of them reported some kind of school response. Table 10 shows these responses by parents and schools, some of which apply to both parents and schools, while others are specific to either parents or schools.

Table 10. Percentage of dropouts from the high school sophomore class of 2002 reporting responses from their parent or school to their dropout decision: Spring 2004

Response	Parent response	School response
Percent with any response	95.0	79.5
Number of responses (mean)	5.0	2.5
Responses by both parents and schools		
Tried to talk the student into staying in school	73.0	36.9
Offered to help student with personal problems	53.1	24.2
Offered to send student to another school	41.9	21.0
Offered to help student make up missed work	33.2	31.9
Offered to put student in special program	26.2	20.5
Offered special tutoring	22.2	16.9
Responses by parents only		
Told student it was the student's decision to make	74.1	—
Told student they were upset	64.6	—
Called a school counselor	31.8	—
Called student's principal or teacher	31.1	—
Told student it was okay to leave	18.3	—
Offered to arrange outside counseling (with a psychologist or social worker)	14.1	—
Punished student for leaving school	14.1	—
Responses by schools only		
Called or visited student's home	—	25.3
Told could return if student did not miss school so often	—	19.1
Told student could not come back	—	16.7
Told could return if student kept a certain grade point average	—	15.4
Expelled or suspended student	—	14.3
Told could return if student followed school discipline rules	—	14.0

— Not available.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."

The common parental and school responses are listed first, in order of parental popularity. Seventy-three percent of parents and 37 percent of school officials tried to talk the student into staying in school. Some parents and schools offered to help the student with school work. Thirty-three percent of dropouts said their parents offered to help make up missed work, and 22 percent said their parents offered to get special tutoring. The corresponding figures for schools are 32 percent and 17 percent. In terms of personal problems, 53 percent of the dropouts reported that their parents offered to help them with personal problems, and 24 percent said that their school personnel made that offer.

Only parents could have responded in ways listed in the second set of responses. These parental responses are listed in order of popularity. Parents reacted in a variety of ways including not getting involved, contacting the school, or being upset. Seventy-four percent of dropouts reported that their parents told them that leaving school was the student's decision to make, and

18 percent said their parents told them it was okay to leave. At the same time, however, 65 percent of dropouts reported that their parents told them they were upset by the student's decision to leave school. Some dropouts reported that their parents contacted the school (32 percent called a school counselor and 31 percent called a principal or teacher). Some dropouts reported that their parents punished them for leaving (14 percent).

Only schools could have responded in ways listed in the third set of responses, listed in order of popularity. Some of these responses involved telling the dropout what to do to return, such as maintain a certain grade point average (15 percent) or follow school discipline rules (14 percent). Some dropouts reported that the schools prevented them from returning by telling them they could not return (17 percent) or suspending or expelling them (14 percent).

In 2004 dropouts were also asked whether they had ever participated in an alternative program. Alternative programs provide different courses and services than most students receive. These programs may take place within a traditional high school, or they may be separate schools. Alternative programs could include dropout prevention programs or programs for teenage parents, but not standard GED programs (i.e., those offering services or courses available to most students). However, most of the dropouts (75 percent) had never participated in any type of alternative program (results not shown in table).

3.3 Status of High School Dropouts in 2004

In the 2004 survey, dropouts responded to questions about their current educational expectations and employment status. Table 11 shows their responses to these questions.

Almost all of the dropouts expected to continue with their education. Two percent of them thought they would have less than high school graduation, while 15 percent planned on obtaining a GED, and 4 percent thought they would graduate from high school. However, 30 percent of dropouts did not know how far in school they expected to go; dropouts chose this response more than any other option, except for having "some college." (No statistically significant difference was found between "some college" and "don't know.") Twenty-five percent of them thought that they would attend some college (a 1- to 2-year program or a 4-year program, but not completing a bachelor's degree), and 17 percent said that they expected to get a bachelor's degree.

Dropouts also indicated whether they were employed as of the 2004 survey; 50 percent of them indicated they were. This result masks a difference between males and females, however (not shown): 57 percent of male dropouts were employed, compared to 42 percent of female dropouts. Of those (male or female) who were currently working, 31 percent worked 25–39 hours per week, and 31 percent worked 40 hours per week. Twenty-two percent said that they worked more than 40 hours per week.

Table 11. Percentage of dropouts from the high school sophomore class of 2002 with given educational expectations and employment status: Spring 2004

Expectations and employment	Percent
Educational expectations in 2004	
Less than high school graduation	2.2 !
GED or other equivalency only	14.8
High school graduation only	4.3
Some college	25.4
Bachelor's degree	16.5
Advanced degree	7.3
Don't know	29.5
Employment status	
Employed	50.4
Not employed	49.6
Employment hours per week[1]	
Less than 25	16.5
25 to 39	30.8
40	30.7
More than 40	22.0

! Interpret data with caution. Standard error is more than one-third as large as estimate.
[1] Applies only to respondents who said they were employed.
NOTE: Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."

Chapter 4. Changes in Dropout Rates and the Characteristics of Dropouts, 1982–2004

This chapter traces changes in the characteristics of high school sophomores, in dropout rates, and in the characteristics of dropouts between 1982, 1992, and 2004. Four sets of student factors are examined in turn: background characteristics, educational supports, educational engagement, and academic achievement. These student factors were collected when the dropouts were in school in the 10th grade in the spring of 1980, 1990, and 2002. For each of these sets of student characteristics, experiences, and outcomes, changes in overall sophomore cohort characteristics are examined first, establishing the context in which dropout rates and characteristics of dropouts change. Second, dropout rates are examined overall and by each set of factors, allowing a close documentation of changes in dropout behavior among certain student subgroups and students with selected experiences. Third, the distribution of dropouts across student subgroups is presented, documenting the extent to which specific characteristics or experiences apply to students who have dropped out. These dropout distributions may be considered as resulting both from changes in overall sophomore class characteristics and from changes in group-specific dropout rates. For example, if the proportion of the sophomore population that is White is lower in 2002 than in 1980, and their dropout rates do not increase substantially between these time points, then their presence as a proportion of all dropouts will also be lower (see tables 12–14 for this example).

As with the rest of this report, the analysis focuses on high school sophomores who were also survey participants 2 years later. Sophomores from the classes of 1980, 1990, and 2002 were identified either as dropouts or as in-school or early completers in 1982, 1992, and 2004, respectively. Information on the high school sophomore class of 1980 comes from the High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/92), which included a base-year survey of sophomores in 1980 and a follow-up with these students in 1982. The 1990 sophomore class is examined through analysis of data from the 1990 "freshened" or augmented nationally representative sample of the sophomore cohort from the National Education Longitudinal Study of 1988 (NELS:88). This sophomore sample and their outcomes in 1992 are used here (see appendix A for more information). The specific estimates used in this chapter for the 1980 and 1990 cohorts of sophomores were obtained from the prior report by Kaufman, McMillen, and Sweet (1996). The same analysis sample used in prior chapters is used for the analysis of 2002 sophomores and their 2004 dropout status (Education Longitudinal Study of 2002 [ELS:2002]).

Since cohorts differ in many ways (only some of which are covered in this chapter), great care should be exercised in interpreting cross-cohort differences. Changes in the overall size, composition, and school and individual experiences of cohort members may be relevant for understanding the processes and implications of dropping out. For example, the size of the sophomore cohort population was 3.8 million in 1980, was 2.8 million in 1990, and 3.4 milllion in 2002 (Cahalan et al. 2006, p. iii). In addition, the experiences of students across cohorts may differ in ways not discussed here: for example, 36 percent of sophomores in 1980 reported being employed, while in 1990 and 2002, some 27 and 26 percent, respectively, of sophomores

reported working at the time of the survey (Cahalan et al. 2006, p. viii). More extensive descriptions of some cross-cohort differences are provided in Cahalan et al. (2006), which uses the same longitudinal cohort data as the current report.

Note again that the dropout rates and distribution of dropouts are defined on the basis of students who dropped out between the spring of their sophomore year and 2 years later. Students who dropped out prior to the spring semester of their sophomore year (when each study surveyed its participants) are not included, and therefore their characteristics and experiences are not examined. In addition, dropout status is measured during the spring term of the typical senior year, which may underestimate dropout rates, because some students may have dropped out but subsequently returned to school. See chapter 1 for extended discussion of these issues.

In reporting statistically significant differences among cohorts, the discussion focuses on 1982 to 2004 comparisons, adding information on 1992 versus 1982 or versus 2004 comparisons when the 1992 result is not in line with the overall (1982–2004) result. For each table, variables are discussed row by row. Within each variable, cross-cohort (within-subgroup) differences are reported first, such as the differences among the 1982, 1992, and 2004 dropout rates. This is followed by discussion of cross-subgroup (within-cohort) differences, such as differences among racial/ethnic groups in a specific year such as 2004.

4.1 Background Characteristics

Tables 12 through 14 report sophomore cohort characteristics, dropout rates, and dropout distributions by student background and family characteristics. The sophomore class characteristics table (table 12) describes all sophomores in 1980, 1990, and 2002, whether or not they later dropped out; this table provides the context for understanding the proportions of students affected by dropping out. The dropout rate table (table 13) specifically indicates the rates of dropping out for each student subgroup. Finally, the dropout distribution table (table 14) shows the percentage of dropouts in different student subgroup categories (e.g., the percentage of dropouts who were male versus female); this table provides information about which student subgroups are most represented among dropouts themselves. Comparing this table with table 12 shows which sophomore-to-dropout subgroups are over- or under-represented compared to all sophomores.

Turning first to sophomore cohort characteristics, table 12 shows that the sex distribution of sophomores changed. In 1980, forty-eight percent of the sophomores were male, compared to 50.5 percent in 2002. The 2002 survey included a new “more than one race” category, which had not been an option in the 1980 and 1990 cohorts. Thus, a racial group’s apparent change over time may reflect students’ identifying themselves as of “more than one race” (4.3 percent in 2002) rather than one of the other categories. Yet comparisons of the 1980 and 2002 cohorts show that the percentage of sophomores who were Asian/Pacific Islander was higher (4 versus 1 percent), and the percent Hispanic (of any race) was higher (16 versus 8 percent), in 2002 than in 1980. Simultaneously, the percentage of sophomores who were White was lower in 2002 (60 percent) than in 1980 (76 percent).

Table 12. Percentage distribution of high school sophomores, by demographic and family characteristics: 1980, 1990, and 2002

Demographic/family characteristic	1980	1990	2002
Sex			
Male	48.1	49.9	50.5
Female	51.9	50.1	49.6
Race/ethnicity[1]			
American Indian	1.6	1.1	1.0
Asian/Pacific Islander	1.4	4.0	4.2
Black	13.4	12.5	14.4
Hispanic	7.8	10.7	15.9
White	75.8	71.7	60.3
More than one race	—	—	4.3
Age[2]			
15 and below	57.9	44.6	44.2
16	37.5	46.6	49.0
17 and above	4.6	8.8	6.8
Family composition			
Mother and father	69.6	63.5	57.9
Mother or father and guardian	8.9	15.2	16.3
Single parent	17.2	18.1	21.8
Other[3]	4.3	3.1	4.0
Parents' highest education level			
High school or less	42.0	29.2	27.2
Some college or more	58.0	70.8	72.8

— Not available

[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

[2] Age as of March 1 of 1980, 1990, or 2002.

[3] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Sophomore cohorts may differ with respect to grade repetition and age. If grade promotion policies have become more strict over time—especially if students are less likely to be promoted from the critical first year of high school (9th grade)—then more sophomores could have experienced being held back, and the average age of sophomores would be higher. Although HS&B does not provide information on grade retention, data are available in NELS:88 and ELS:2002. The percentage of students held back in 9th grade was not statistically different in

1990 versus 2002, with about 1 percent of students from both cohorts reporting repeating 9th grade (not shown in table).[6]

Changes in grade retention policies across multiple grades and changes in the age of entry to compulsory education may have resulted in differences in the age distributions of cohorts. Table 12 shows that the proportion of sophomores who were 15 years old and younger was higher in 1980 (60 percent) than in 1990 (45 percent). No statistically significant difference was observed between 1990 and 2002. The proportion of 16-year-olds rose from 38 percent in 1980 to 47 percent in 1990, and rose again to 49 percent in 2002. The proportion of sophomores ages 17 years or older was 5 percent in 1980; this rose to 9 percent in 1990 before falling back to 7 percent in 2002.

In terms of family characteristics, there was a shift away from families with two parents and toward parent-plus-guardian and single-parent families. Students from families with two parents made up 70 percent of the sophomore class in 1980; in 2002, they made up 58 percent of the sophomore class. This change corresponded with a lower percentage of sophomores in parent-plus-guardian and single-parent families in 1980 compared to 2002 (9 and 17 percent, respectively, in 1980; and 16 and 21 percent in 2002). Changes in parental education represent an increase in family educational resources. (Parents' highest education level refers to highest level attained by either parent, guardians not included.) When 1980 is compared to 2002, the percentage of sophomores with at least one parent who had attended at least some college or more rose from 58 percent to 73 percent.

In terms of dropout rates, declines were evident among all sophomores as well as among sophomores in most subgroups (table 13). The overall dropout rate in 1992 was lower compared to the 1982 rate (6 percent versus 11 percent), while showing no statistically significant change in the 1992 rate compared to 2004.

[6] There are methodological differences in the way this information was gathered. NELS:88 asked sophomores about semester-to-semester progression from the end of 8th grade to what would normally be the beginning of 10th grade (sophomores who were added as "freshened" sample members were asked directly about 9th-grade retention, however). ELS:2002 asked all students directly about 9th-grade retention. If partial (i.e., semester-specific) retentions are captured by the NELS:88 questions but not by the whole-grade ELS:2002 question, then the NELS:88 result may be overestimated.

Table 13. Dropout rates of high school sophomores 2 years later, by demographic and family characteristics: 1982, 1992, and 2004

Demographic/family characteristic in sophomore year	1982	1992	2004
Total	11.4	6.2	6.6
Sex			
Male	12.4	5.7	7.4
Female	10.4	6.7	5.9
Race/ethnicity[1]			
American Indian	26.9	17.0 !	4.7 !
Asian/Pacific Islander	1.8 !	4.2 !	3.2
Black	13.5	7.9	9.8
Hispanic	19.2	12.1	11.2
White	10.2	5.0	4.8
More than one race	—	—	8.0
Age[2]			
15 and below	0.3	0.6	0.29
16	0.5	0.7	0.43
17 and above	2.2	1.9	1.83
Family composition			
Mother and father	6.4	4.6	4.3
Mother or father and guardian	14.5	8.2	9.8
Single parent	12.5	8.8	9.0
Other[3]	21.5	10.9	7.3
Parents' highest educational level			
High school or less	12.6	11.3	11.2
Some college or more	6.9	3.5	4.5

— Not available.

! Interpret data with caution. Standard error is more than one third as large as estimate.

[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

[2] Age as of March 1 of 1980, 1990, or 2002.

[3] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Both males and females had lower rates in 1992 than in 1982. In 1982, some 12 percent of males had dropped out, compared to 6 percent in 1992; in 2004, this rate had risen to 7 percent. The corresponding rates for females were 10 percent in 1982, which dropped to 7 percent in 1992 and remained lower in 2004 (though not statistically different from 1992) at 6 percent. Within cohorts, males had a higher dropout rate than females in 1982 and 2002—in 2002, seven percent of males dropped out, while 6 percent of females dropped out.

For all racial/ethnic groups except Asians/Pacific Islanders, for whom no measurable difference was observed, dropout rates were lower in 2004 than in 1982. For example, the dropout rates for Hispanics was 19 percent in 1982 compared to 11 percent in 2004 (a higher rate than Asians/Pacific Islanders and Whites). Across racial/ethnic subgroups within each cohort, Black sophomores, at 14 percent, had higher dropout rates in 1982 than peers in other racial/ethnic groups (except Hispanic sophomores), and in 2004 continued to have higher dropout rates (10 percent) than all other racial/ethnic groups except Hispanics. (Note again the presence of the "more than one race" category in 2004, which may affect results.)

Sophomores ages 17 or older dropped out at higher rates than their younger peers. For example, in 2004, some 28 percent of sophomores 17 years or older dropped out, compared to 7 percent of 16-year-old sophomores and 3 percent of 15-year-old or younger sophomores. The dropout rates for 16-year-old and 15-year-old or younger sophomores were lower in 2004 than in 1992 (no other statistically significant differences were observed).

Students from families with two parents dropped out in lower proportions than students from different family types in all three cohorts. In 2004, four percent of students from families with two parents dropped out, compared to 9 percent of single-parent-family students, 10 percent of parent-plus-guardian-family students, and 7 percent of other family students. In 1982, dropout rates were highest among students from other family forms (e.g., two guardians or a single guardian), with 22 percent of sophomores dropping out by spring term 2 years later versus 15 percent for students from parent-plus-guardian families, 13 percent from single-parent families, and 6 percent from intact two-parent families. In 1992, other family students had dropout rates that were not measurably different than students from single- or parent-plus-guardian families, a finding that persisted in 2004.

In all three cohorts, sophomores whose parents had attended some college (short of a bachelor's degree) or had attained more education dropped out 2 years later at lower rates than sophomores whose parents had only completed high school or less. (Parents' highest education level refers to highest level attained by either parent.) In 2004, five percent of students whose parents attended some college or attained more education dropped out, compared to 11 percent of students whose parents had only a high school diploma or less. In terms of changes over time, the dropout rate was lower in 2004 than in 1982 for students whose parents had at least some college (5 percent versus 7 percent); however, there was no measurable difference between the three cohorts for students whose parents had a high school education or less.

Table 14 presents the distribution of spring-term dropouts within student background and family characteristics categories. The percentage of dropouts who were male was 45 percent in 1992, compared to 56 percent in 2004 (the 1982 to 1992 comparison was not statistically significant). Within racial/ethnic groups, because of a drop in the overall population (table 12) and a drop in the group-specific dropout rate (table 13), the proportion of dropouts who were White was lower in 2004 than in 1982 (44 versus 67 percent, respectively) (table 14). The representation of Blacks, Hispanics, and Asians/Pacific Islanders was higher in 2004 than in 1982 (21 versus 16 percent, 27 versus 13 percent, and 2 versus less than 1 percent, respectively). Whites remained the largest proportion of dropouts at 44 percent, though they were no longer the majority in 2004 as they were in 1992 (57 percent) and 1982 (67 percent). (Some portion of these changes may result from the introduction of a multiracial category in ELS:2002; however, as that only affects 5 percent of the 2004 population, significant differences that exceed 5 percentage points are likely to reflect real change.) The percentage of dropouts who were older (ages 17 or

above as sophomores) increased from 17 percent in 1982 to 31 percent in 1992, while the percentage that was younger (15 years old or less) as sophomores declined from 37 percent of all dropouts in 1982 to 23 percent in 1992 (the 1992 versus 2004 comparisons of these percentages were not statistically significant).

Table 14. Percentage distribution of dropouts, by demographic and family characteristics: 1982, 1992, and 2004

Demographic/family characteristic in sophomore year	1982	1992	2004
Sex			
Male	49.9	45.1	56.2
Female	50.1	54.9	43.8
Race/ethnicity[1]			
American Indian	3.7	3.1 !	0.7 !
Asian/Pacific Islander	0.2 !	2.7 !	2.0
Black	15.8	15.9	21.2
Hispanic	13.1	20.9	27.2
White	67.2	57.4	44.0
More than one race	—	—	4.9
Age[2]			
15 and below	37.1	22.7	18.2
16	46.3	46.8	52.0
17 and above	16.6	30.5	29.8
Family composition			
Mother and father	50.6	48.1	39.0
Mother or father and guardian	14.5	20.4	25.3
Single parent	24.4	26.0	31.1
Other[3]	10.5	5.6	4.6
Parents' highest education level			
High school or less	57.0	56.9	47.4
Some college or more	43.0	43.1	52.6

— Not available.

! Interpret data with caution. Standard error is more than one third as large as estimate.

[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

[2] Age as of March 1 of 1980, 1990, or 2002.

[3] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

The changes in the family characteristics of dropouts reflected the changes to all sophomores during this period. As with all sophomores, the proportion of dropouts who were from intact two-parent families fell from 51 percent in 1982 to 39 percent in 2004. The opposite change was observed for parent-plus-guardian and single-parent family students, whose proportion of all dropouts was higher in 2004 (25 and 31 percent, respectively) than in 1982 (15 and 24 percent, respectively). Finally, the proportion of dropouts whose parents completed some college or more was higher in 2004 (53 percent) than in 1982 (43 percent).

4.2 Educational Supports

Tables 15 through 17 report sophomore cohort characteristics, dropout rates, and dropout distributions by mothers' educational expectations for their sophomore (as reported by the student). In comparison to educational expectations reported by the parent (chapter 2), maternal expectations as reported by the student are available for all three sophomore cohorts. Significant others' expectations have been linked to positive educational outcomes (e.g., Cohen 1983; Carbonaro 1998).

Table 15 provides the overall context of dropping out by describing all sophomores in 1980, 1990, and 2002, whether they dropped out later or not. Mothers' expectations for their sophomores' educational attainment (reported by the student) increased in two higher education categories. When 1980 is compared to 1990, the percentage of sophomores who said that their mother expected them to earn a bachelor's degree increased from 26 percent to 46 percent. This percentage was lower in 2002 (at 42 percent) than in 1990 but remained higher than the 1980 figure (26 percent). Mothers' reported expectations that their sophomores would earn a graduate or professional degree increased from 20 percent to 36 percent across the two later time points. Within cohorts, a bachelor's degree was the most commonly reported maternal expectation for sophomores in 1980, 1990, and 2002.

Table 15. Percentage distribution of high school sophomores, by student-reported maternal educational expectations: 1980, 1990, and 2002

Support factor	1980	1990	2002
Mother's expectation for student's educational attainment[1]			
High school or less	11.8	5.6	7.9
Vocational school	9.6	7.1	—
Some college	11.5	14.9	8.2
Bachelor's degree	26.0	45.7	41.9
Graduate/professional degree	21.3	20.2	35.8
Don't know	20.0	6.5	6.3

— Not available.

[1] As reported by the student. Note that vocational school does not exist as a category in 2002 (BYS65A).

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table 16 presents the dropout rates for each student subgroup included in table 15. Dropout rates were lower in 2004 than in 1982 for reported maternal expectations of high school or less (21 versus 13 percent, respectively) but were higher for reported maternal expectations of some college (7 versus 10 percent between 1982 and 2004). Within cohorts, dropout rates were higher in all years among students who said their mother expected them to attain only a high school diploma or less, compared to those whose mother expected a bachelor's or graduate/professional degree. (In 2004, the dropout rate for high school or less maternal expectations was 13 percent; it was 4 percent for both bachelor's degree and graduate or professional degree expectations.)

Table 16. Dropout rates of high school sophomores 2 years later, by student-reported maternal educational expectations: 1982, 1992, and 2004

Support factor in sophomore year	1982	1992	2004
Mother's expectation for student's educational attainment[1]			
High school or less	20.5	23.1	13.2
Vocational school	10.4	10.3	—
Some college	7.0	4.5	10.2
Bachelor's degree	4.2	3.0	4.2
Graduate/professional degree	4.5	4.4	3.6
Don't know	10.1	10.7	9.9

— Not available.
[1] As reported by the student. Note that vocational school does not exist as a category in 2002 (BYS65A).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Finally, table 17 shows the percentage distribution of spring-term dropouts for reported maternal educational expectations; this table shows which student subgroups are most represented among dropouts. As with all sophomores, mothers of dropouts had higher reported expectations in 2002 than they did in 1980. Of those who dropped out in 1982, thirteen percent said their mothers expected them to attain a bachelor's degree and 12 percent said their mothers expected them to attain a graduate or professional degree. Of those who dropped out in 2004, these percentages were higher at 32 percent (bachelor's degree) and 23 percent (graduate/professional degree). The percentage of sophomores who reported that they did not know their mothers' expectations for them was lower in 1992 than in 1982 and showed no detectable difference in 2004 compared to 1992.

Table 17. Percentage distribution of dropouts. by student-reported maternal educational expectations: 1982, 1992, and 2004

Support factor in sophomore year	1982	1992	2004
Mother's expectation for student's educational attainment[1]			
High school or less	29.1	22.8	18.7
Vocational school	12.0	13.0	—
Some college	9.7	11.9	15.0
Bachelor's degree	13.2	24.2	31.8
Graduate/professional degree	11.6	15.7	23.3
Don't know	24.4	12.4	11.2

— Not available.

[1] As reported by the student. Note that vocational school does not exist as a category in 2002 (BYS65A).

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

4.3 Time Use and Coming to Class Prepared

Tables 18 through 20 present the overall sophomore cohort distribution, dropout rates, and the distribution of dropouts by measures of time use and coming to class prepared. These factors include time spent watching television or video on weekdays,[7] working outside the home, and doing homework, as well as how often the student attended class without books or without pencil or paper.

Table 18 shows these measures for all sophomores in the three cohorts, whether or not they dropped out later. A large majority of sophomores spent less than 5 hours per weekday watching television or video in all years (in 2002, eighty-one percent of sophomores spent less than 5 hours, smaller than the 91 percent in 1990 but larger than the 72 percent in 1980). (Please note caveats in appendix A, section A.5.2.) Similarly large majorities worked 20 hours or less per week (in 2002, eighty-eight percent of sophomores worked 20 hours or less per week, an increase from 1980 as well as the 1990 low of 78 percent) and spent 1–10 hours a week on homework (in 2002, sixty-nine percent spent 1–10 hours per week on homework, a decline from 79 percent in 1990 and 87 percent in 1980). For homework, the percentage of sophomores spending 11 or more hours per week on homework was higher in 2002 than in 1990 and 1980 (23 percent versus 14 and 7 percent, respectively).

[7] The question wording for this item was somewhat different in HS&B than in NELS:88 and ELS:2002, potentially inflating HS&B estimates, and the categorization of NELS:88 TV hours was slightly different than the HS&B and ELS:2002 categorization. Note also that HS&B asked about television only but NELS:88 and ELS:2002 included video watching. See appendix A (section A.5.2) for more information.

Table 18. Percentage distribution of high school sophomores, by time use and coming to class prepared: 1980, 1990, and 2002

Engagement factor	1980	1990	2002
Hours of TV or video per day on weekdays			
Less than 5 hours	72.4	90.8	80.7
5 or more hours	27.7	9.2	19.3
Hours of work per week			
20 hours or less	80.4	78.2	88.2
Over 20	19.6	21.8	11.8
Hours of homework per week[1]			
None	7.0	7.2	7.3
1–10	86.6	79.1	69.4
11 or more	6.5	13.7	23.3
Attends class without books			
Often/sometimes	8.1	6.4	16.3
Seldom/never	91.9	93.6	83.7
Attends class without pencil/paper			
Often/sometimes	14.9	10.4	16.9
Seldom/never	85.1	89.6	83.1

[1] Refers to homework done out of school.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

The percentages of students reporting that they sometimes or often attended class without books or without pencil or paper were higher in 2002 than in 1990. In 2002, sixteen percent of students reported that they often or sometimes attended class without books (an increase from 1980 as well as from the 1990 low of 6 percent), and 17 percent of students reported that they often or sometimes attended class without paper or a pencil (an increase from 1980 as well as from the 1990 low of 10 percent).

Table 19 shows spring-term dropout rates for sophomores 2 years later by time use and class preparation., No statistically significant difference in dropout rates was observed across cohorts for students who reported watching 5 or more hours of television or video per week. For students who reported watching fewer than 5 hours of television or video per week, the dropout rate was statistically significantly lower in 1992 and 2004 (5 and 6 percent, respectively) than in 1982 (8 percent). Within cohorts, dropout rates were lower for students who reported watching less than 5 hours of television or video per week than for students who reported watching 5 or more hours of television or video per week in 1992 (5 percent versus 10 percent) and in 2004 (6 percent versus 9 percent).[8]

[8] Please see appendix A, section A.5.2, for caveats regarding cross-cohort comparisons of groups based on hours spent watching television or video.

Dropout rates were lower in 2004 than in 1982 for students working over 20 hours per week (10 percent in 2004 and 14 percent in 1982; no significant difference was observed when 2004 was compared to 1992). For students working 20 hours or less per week, dropout rates in 2004 were higher than in 1992 (6 percent versus 5 percent) but lower than in 1982 (8 percent). Within each cohort, students reporting working over 20 hours per week dropped out at higher rates than students reporting working 20 hours or less per week.

Table 19. Dropout rates of high school sophomores 2 years later, by time use and coming to class prepared: 1982, 1992, and 2004

Engagement factor in sophomore year	1982	1992	2004
Hours of TV or video per day on weekdays			
Less than 5 hours	8.4	5.1	5.5
5 or more hours	9.1	10.2	8.6
Hours of work per week			
20 hours or less	7.6	4.9	6.2
Over 20	14.3	9.1	9.8
Hours of homework per week[1]			
None	26.0	15.1	12.3
1–10	7.7	5.4	6.4
11 or more	4.7	2.0	3.6
Attends class without books			
Often/sometimes	18.8	11.1	9.2
Seldom/never	7.9	5.6	5.6
Attends class without pencil/paper			
Often/sometimes	15.3	8.1	8.5
Seldom/never	7.6	5.7	5.8

[1] Refers to homework done out of school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Dropout rates were lower in 1992 than in 1982 by 11 percentage points for students who did no homework during the week (26 versus 15 percent), while no difference was observed in the later period between 1992 and 2004. Among those who reported doing 11 or more hours of homework per week, there was no measurable difference in dropout rates when 1982 (5 percent) is compared to 2004 (4 percent); however, the dropout rate for this group was lower in 1992 (2 percent) than in either other year.

Dropout rates declined for students coming to class prepared, as measured by the frequency of seldom or never coming to class without books and the frequency of seldom or never coming to class without pencil/paper. Between 1982 and 1992, dropout rates declined from 8 to 6 percent for both groups of students (no statistical difference was observed between 1992 and 2004). Also between 1982 and 1992, dropout rates declined for students coming to class unprepared. Dropout rates for students coming to class often or sometimes without books was 19 percent in 1982 and 11 percent in 1992. Dropout rates for students coming to class often or

sometimes without pencil or paper was 15 percent in 1982 and 8 percent in 1992. In both cases, no statistical difference was observed between 1992 and 2004.

Finally, table 20 shows which time use and class preparation subgroups are most represented among dropouts. As with all sophomores, the percentage of dropouts in 2004 who reported working more than 20 hours per week as sophomores was lower than in 1992 and 1982 (17 percent versus 34 and 32 percent, respectively). The percentage of dropouts reporting that they did not do any homework declined from 21 percent in 1982 to 15 percent in 2004. Unlike for all sophomores, there was no statistically significant change between 1982 and 2004 in television watching for dropouts.

Table 20. Percentage distribution of dropouts, by time use and coming to class prepared: 1982, 1992, and 2004

Engagement factor in sophomore year	1982	1992	2004
Hours of TV or video per day on weekdays			
Less than 5 hours	70.9	83.1	72.9
5 or more hours	29.1	16.9	27.1
Hours of work per week			
20 hours or less	68.4	66.1	82.6
Over 20	31.6	33.9	17.4
Hours of homework per week[1]			
None	20.6	19.3	14.5
1–10	76.0	76.0	71.8
11 or more	3.5	4.7	13.6
Attends class without books			
Often/sometimes	17.5	12.1	24.3
Seldom/never	82.5	87.9	75.7
Attends class without pencil/paper			
Often/sometimes	25.9	14.2	23.1
Seldom/never	74.1	85.8	76.9

[1] Refers to homework done out of school.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

As with all sophomores, a greater percentage of dropouts reported attending class without books in 2004 than in 1982, though the percentage of dropouts reporting so was less in 1992 than in either 1982 or 2004. Of 1982 dropouts, 18 percent said they often or sometimes attended class without books, compared to 12 percent of 1992 dropouts and 24 percent of the 2004 dropouts. However, there was no change in the percentage of dropouts who reported that they had attended class without pencil or paper when 2004 was compared to 1982 (again, though, the 1992 percentage of 14 percent of dropouts represented a low across cohorts).

Like all sophomores, majorities of dropouts in all cohorts watched less than 5 hours of television or video on weekdays, worked 20 hours or less per week, did 1–10 hours of homework

per week, and seldom or never attended class without books or paper or pencil. Except for the middle homework category (1–10 hours per week), dropouts experienced each of these distractions and came to class unprepared at higher percentages than sophomores overall. For example, while 19 percent of all sophomores in 2004 watched 5 or more hours of television or video per weekday (table 18), 27 percent of dropouts did so (table 20). Nevertheless, as with all sophomores, the majority of dropouts in each cohort attended class prepared and were in the lowest categories of hours per week working or watching television or video.

4.4 Academic Achievement

Tables 21 through 23 present categorical academic achievement information for all sophomores, associated dropout rates by level of achievement, and the percentage distribution of dropouts across achievement categories. Table 24 presents additional achievement information for dropouts and non-dropouts using continuous factors such as an equated mathematics test score, credits earned in the 2 years prior to the end of 10th grade, and grade point average in courses in the 2 years prior to the end of 10th grade.[9]

Tables 21 through 23 focus on the quarter of the sophomore math test distribution in which the student scored and a categorization of the number of credits earned by the end of 10th grade. These achievement factors are shown for all sophomores (regardless of whether or not they dropped out later) in table 21. By definition (and as a baseline for comparison to table 23), 25 percent of the sophomore sample scored in the lowest quarter of the mathematics test, 50 percent scored in the middle two quarters, and 25 percent scored in the highest quarter. In terms of total credits earned in 9th and 10th grade (in all subjects, including courses such as physical education and art), student transcripts showed that a majority of students had earned at least 10 credits (Carnegie units, or a standardized measure of course taking) in all years. In 1980, seventy-one percent of sophomores had earned 10 or more credits, and this grew to 87 percent in 1990 and 97 percent in 2002. By 2002, fewer than 4 percent of sophomores were earning less than 10 credits by the end of 10th grade.

Dropout rates for students falling in these academic achievement categories are shown in table 22. In all years, dropout rates were higher for students in lower math test quarter groups than for those in higher math test quarter groups. In 2004, fourteen percent of those in the lowest quarter of their cohort dropped out, compared to 6 percent of those in the middle two math test quarters and 1 percent of those in the highest math test quarter. Dropout rates for students in the lowest quarter of their cohort on the math test increased from 17 percent in 1982 to 22 percent in 1992, then declined to 14 percent in 2004. Dropout rates also declined between 1992 and 2004 for sophomores in the middle two math test quarters, from 8 to 6 percent.

[9] Credits and grade point average (GPA) include courses taken through August in the summer following sophomore year.

Table 21. Percentage distribution of high school sophomores, by academic achievement factors: 1980, 1990, and 2002

Achievement factor	1980	1990	2002
Math test quarter			
Lowest	25.0	22.6	24.9
Middle two	50.0	51.2	50.0
Highest	25.0	26.2	25.0
High school credits earned by end of sophomore year[1]			
Below 5	3.8	1.8	0.5
5 to less than 10	24.8	11.6	3.0
10 or more	71.4	86.6	96.5

[1] Credits include courses taken through August in the summer following sophomore year.
NOTE: Detail may not sum to totals because of rounding. By definition, precisely 10 percent of sophomores scored in the lowest tenth of their cohort on the mathematics test.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Table 22. Dropout rates of high school sophomores 2 years later, by academic achievement factors: 1982, 1992, and 2004

Achievement factor in sophomore year	1982	1992	2004
Math test quarter			
Lowest	17.3	21.9	13.6
Middle two	6.7	8.1	6.1
Highest	1.6	1.2	1.2
High school credits earned by end of sophomore year[1]			
Below 5	51.2	46.2	53.2
5 to less than 10	19.8	21.2	54.8
10 or more	4.7	2.9	4.2

[1] Credits include courses taken through August in the summer following sophomore year.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Dropout rates for those with less than 10 credits from all courses were also higher than for those students with 10 or more credits earned by the end of 10th grade. For example, in 2004, fifty-five percent of students who had earned 5–10 total credits dropped out, compared to 4 percent of those who had earned at least 10 credits. The dropout rates for students with 5–10 credits also increased from 1992 (21 percent) to 2004 (55 percent).

Table 23 shows the distribution of dropouts themselves, providing information about which sophomore achievement subgroups were most represented among dropouts. There were no statistically significant differences across cohorts in the proportion of dropouts from each

math test quarter group. However, in 1982 and 1992, sophomores who had scored in the lowest quarter of the math test distribution were the largest group of dropouts; in 2004, there was no difference in the percentage of dropouts from the lowest math test quarter and the middle two math test quarters. In all years, the percentage of dropouts from the highest math test quarter was lower than the percentage from other quarter groups. In 2004, some 48 percent of dropouts had scored in the lowest math test quarter as sophomores, 47 percent in the middle two quarters, and 5 percent in the highest quarter.

Compared to about 4 percent of all sophomores (table 21), 31 percent of the 2004 dropouts earned fewer than 10 total credits by the end of their sophomore year (table 23),. Thus, for both math test score and credits earned, dropouts have poorer academic achievement than all sophomores.

Table 23. Percentage distribution of dropouts, by academic achievement factors: 1982, 1992, and 2004

Achievement factor in sophomore year	1982	1992	2004
Math test quarter			
Lowest	52.4	52.5	48.4
Middle two	42.4	44.1	46.8
Highest	5.2	3.4	4.8
High school credits earned by end of sophomore year[1]			
Below 5	19.1	14.5	4.8
5 to less than 10	48.1	42.4	26.3
10 or more	32.7	43.1	69.0

[1] Credits include courses taken through August in the summer following sophomore year.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Table 24 presents a complementary view of academic achievement among sophomores who subsequently dropped out and sophomores who did not drop out using three variables. First, the average mathematics assessment score earned as a sophomore is an item-response theory (IRT) estimated score of the number of questions a student would have answered correctly if each assessment had used the same pool of items (see appendix A for more detail). The range of possible scores is 0 to 58 and is comparable across cohorts. For sophomores who did not drop out, the math test score in 1982 was 34, and in 2004, it was 38. By comparison, sophomores who subsequently dropped out had an average score of 24 items estimated correct on their sophomore math assessment in 1982; this rate was higher in 1992 and 2004, at 25 to 29 items estimated correct, respectively. Within cohorts, dropouts had lower math test scores than non-dropouts in all cohorts.

Table 24. Average sophomore math test score, academic credits earned, and academic grade point average (GPA) for dropouts and non-dropouts: 1982, 1992, and 2004

Achievement factor in sophomore year	1982	1992	2004
Average math test score[1]			
Dropouts	24.0	25.0	29.3
Non-dropouts	34.0	37.2	38.5
Average academic credits earned[2]			
Dropouts	5.2	6.0	6.3
Non-dropouts	7.8	9.0	9.8
Average academic GPA[2]			
Dropouts	1.4	1.4	1.4
Non-dropouts	2.4	2.4	2.6

[1] Math test score is the item-response theory (IRT) estimated number correct on a 58-item test equated across the three cohorts.
[2] Credits and GPA include courses taken through August in the summer following sophomore year.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Second, the average number of credits earned in academic courses (in the 2 years up to the end of 10th grade) is presented (note that this number is different from tables 21 through 23, where *all* course credits were included; academic credits here refer to credits earned in major subjects of English, mathematics, science, social studies, and foreign language). Sophomores who subsequently dropped out earned fewer academic credits across all cohorts than those who did not drop out; non-dropouts earned about 10 academic credits through their sophomore year, compared to 6 academic credits for those who subsequently dropped out. Non-dropouts' academic credits earned was higher in 2002 than in 1980—10 versus 8—while dropouts' academic credits were also higher between these time points, at 6 versus 5 academic credits earned in 9th and 10th grade.

Finally, table 24 reveals that the average academic GPA earned by the end of 10th grade (for the two previous years) showed a change from 1990 to 2002 for non-dropouts of 0.2, from 2.4 to 2.6. However, dropouts' average academic GPA did not show any detectable difference across cohorts. Within cohorts, sophomores who subsequently dropped out had a lower academic GPA than non-dropouts in all years (1.4 versus 2.6, respectively, in 2002).

Chapter 5. Conclusion

This report examined late high school dropout rates and experiences of the spring 2002 sophomore cohort and comparisons of late high school dropout rates and the distribution of dropouts in 1982, 1992, and 2004. The report is provided with the caution that the relationships between characteristics and dropping out are purely correlational and do not indicate causality; a different type of analysis is required to determine causality. Examinations of changes over time indicated a relatively stable dropout rate between 1992 and 2004. A number of subgroup differences in dropout rates and dropout experiences was observed throughout the analysis and these subgroup differences were relatively consistent when 2004 was compared to 1982. It is important to emphasize that the current findings address only dropping out in late high school and do not cover those students who dropped out before the spring of 10th grade. For this reason, rates reported here will be lower than those based on the students' entire high school or earlier school career, and comparisons across time involving cumulative dropout rates may produce different results. In addition, because the dropout rate used in this report does not count alternative completers (e.g., recipients of the General Educational Development [GED] credential) as dropouts, this rate should not necessarily be interpreted as the inverse of an overall graduation rate.

Of high school sophomores in 2002, about 7 percent were out of school in the spring of 2004; this rate was not statistically different from 1992 (tables 2 and 13). Males had higher dropout rates than females. Asians/Pacific Islanders had lower dropout rates than Whites, who left school in smaller proportions than Black or Hispanic students (table 2). Relatively disadvantaged students, in terms of family socioeconomic status and parental education, had higher dropout rates than their more affluent peers (table 3). Those attending public high schools had higher rates of dropping out than those in Catholic or other private high schools, and students in high poverty schools and schools where minorities predominate dropped out at higher rates (table 4).

In addition, sophomores whose parents and teachers did not expect them to go far in school had higher dropout rates (table 5). Those whose teachers believed they were engaged in the classroom had higher rates of staying in school than those whose teachers did not think so (table 6). Sophomores who reported that they were prepared for class and engaged with school had lower rates of dropping out than students who did not have these habits and attitudes (table 7). Dropout rates varied by levels of academic performance. Students who had been held back a grade, those who had lower 9th-grade GPAs, and those who had lower 10th-grade scores on reading and math tests had higher dropout rates than those who had performed better academically (table 8).

Students had many different experiences as they left school. Respondents could choose from a number of reasons for leaving school, most of which pertained to the school environment, and could choose multiple reasons simultaneously. While most listed reasons for leaving that are associated with the school, such as getting poor grades and not liking school, some left for family-related reasons or for employment-related reasons. Both males and females and members of every racial/ethnic group identified school reasons for leaving at higher rates than other

reasons (table 9 and figure 2). Females said they left for family-related reasons at higher rates than males and said they left for employment-related reasons at lower rates than males.

Dropouts reported experiencing a range of responses from schools and parents to their decision to leave (table 10). Seventy-three percent of dropouts said that their parents tried to talk the student into staying in school, and 53 percent said their parents offered to help with personal problems. Parents also responded by telling the dropout that leaving school was his or her decision to make (74 percent of dropouts indicating this) or telling the student that they were upset (64 percent). Dropouts most often reported that their schools tried to talk them into staying in school (37 percent of dropouts reporting this) and offered to help them make up missed work (32 percent). In considering their current status and future plans, 50 percent of dropouts had jobs at the time of the survey, and most expected to go further in school than they had as of spring 2004 (table 11).

The demography of the sophomore population shifted between 1980 and 2002. For example, a greater percentage of sophomores were Hispanic in 2002 than in 1980, and a smaller percentage of sophomores came from two-parent households in 2002 than in 1980 (table 12). A comparison of dropout rates between 1982 and 1992 showed a decline from 11 to 6 percent; this decline was evident among both males and females and all racial/ethnic groups except Asians/Pacific Islanders (table 13). Homework hours were higher in 2004 than in 1982 for all sophomores, and distractions of television and outside work were lower between these two time points (table 18); dropout rates for less-prepared and more-distracted students markedly declined when 2004 was compared to 1982, as well (table 19).

The percentage of sophomores overall who earned very few credits was lower in 2002 than in 1980 (table 21), but dropout rates remained high or were higher for sophomores in certain few-credits-earned categories (table 22). Those who dropped out had lower academic achievement when they were sophomores.

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Appendix A
Technical Notes and Glossary

A.1 Overview of the Technical Appendix

The National Center for Education Statistics (NCES) of the U.S. Department of Education has collected longitudinal data on high school aged youth for more than 30 years. Starting in 1972 with the National Longitudinal Study of the High School Class of 1972 (NLS:72) and continuing to the most recent study, the Education Longitudinal Study of 2002 (ELS:2002), NCES has provided longitudinal and trend data to education policymakers and researchers that link secondary school educational achievement and experiences with important outcomes, such as entry into the labor market and postsecondary educational access and attainment.

The first section of this appendix gives further information about the design and content of the three studies whose data are drawn upon in this report: High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), and ELS:2002. This section is followed by information about the basic statistical design of the surveys, response rates, and the specific weights and target populations that were used to produce the estimates in this report. Next, the statistical procedures used to determine the statistical significance of the results are described. Then, detailed descriptions of each variable from the survey data used in the report are provided.

A.2 NCES High School Longitudinal Studies Program

In response to its mandate to "collect and disseminate statistics and other data related to education in the United States" and the need for policy-relevant, nationally representative longitudinal samples of elementary and secondary students, NCES instituted the High School Longitudinal Studies program. The aim of this continuing program is to study the educational, vocational, and personal development of students at various stages in their educational careers and the personal, familial, social, institutional, and cultural factors that may affect that development.

The high school longitudinal studies program consists of three completed studies, one ongoing study, and one study now in the early stages of design and implementation. The completed studies comprise the NLS:72, HS&B, and NELS:88. In addition, base-year, first follow-up, and second follow-up data are available for the ongoing ELS:2002, which is the fourth longitudinal study in the series. Finally, a new study, the High School Longitudinal Study of 2009 (HSLS:09) has just begun. Taken together, NLS:72, HS&B, NELS:88, and ELS:2002 describe the educational experiences of students from four decades—the 1970s, 1980s, 1990s, and 2000s—and also provide bases for further understanding of the correlates of educational success in the United States. For the current report, ELS:2002 serves as the primary source, with HS&B and NELS:88 data used to identify changes in 2004 compared to 1992 and 1982. NLS:72 is not used in the current report because it begins with a sample of high school seniors who by definition had not dropped out (i.e., sophomore cohort members who dropped out 2 years later are not observable in NLS:72).

A.2.1 High School and Beyond (HS&B)

HS&B—the second in the series of NCES high school longitudinal studies—was launched in 1980.[1] HS&B included a cohort of high school seniors and a cohort of high school sophomores from 1980. As in NLS:72, postsecondary transcripts were collected for both HS&B cohorts. This report uses questionnaire data collected in the HS&B base year (1980) from the senior cohort and transcript data collected for the 1980 sophomore cohort in the first follow-up (1982). Base-year data collection took place in the spring term of the 1979–80 academic year with a two-stage probability sample. Some 1,015 schools served as the first-stage units, and 35,723 sophomores and 34,981 seniors within these schools were the second-stage units and eligible to participate (of whom about 58,000 participated in the base year). Subsamples of both cohorts of HS&B were resurveyed in 1982, 1984, and 1986; the sophomore cohort also was surveyed in 1992. High school transcripts were collected for a subsample of approximately 15,941 sophomore cohort members in the 1982 first follow-up, when most were seniors. In addition, to better understand the school and home contexts for the sample members, data were collected from teachers (a teacher comment form in the base year asked for teacher perceptions of HS&B sample members), principals, and a subsample of parents.

With the study design expanded to include a sophomore cohort, HS&B provided critical data on the relationships between early high school experiences and students' subsequent educational experiences in high school. For the first time, national data were available that showed students' academic growth and how family, community, school, and classroom factors were associated with student learning. Researchers were able to use data from the extensive battery of achievement tests within the longitudinal study to assess growth in knowledge and cognitive skills over time. Moreover, data were then available to analyze the school experiences of students who later dropped out of high school and, with the use of later follow-ups, to investigate their subsequent educational and occupational outcomes.

A.2.2 National Education Longitudinal Study of 1988 (NELS:88)

NELS:88 represents an integrated system of data that tracked students from junior high or middle school through secondary and postsecondary education, labor market experiences, and marriage and family formation. Many of the innovations and design features of NELS:88 were carried over into ELS:2002.

Data collection for NELS:88 was initiated with the 8th-grade class of 1988 in the spring term of the 1987–88 school year. Along with a student survey, NELS:88 included surveys of parents (base-year and second follow-up), teachers (base-year, first follow-up, and second

[1] For a summation of the HS&B sophomore cohort study, see Zahs et al. (1995). For more information on HS&B in the high school years, with a focus on the sophomore cohort, see Jones et al. (1983, 1984). For further information on HS&B, see the NCES website (http://www.nces.ed.gov/surveys/hsb/).

follow-ups), and school administrators (base-year, first follow-up, and second follow-ups). The sample was also surveyed after scheduled high school graduation, in 1994 and 2000.[2]

NELS:88 base year. The NELS:88 base year (1988) successfully surveyed 24,599 students, out of some 26,432 selected 8th-graders, across 1,052 public, Catholic, and other private schools. In addition to filling out a questionnaire, students also completed assessments in four subjects (the NELS:88 achievement battery included tests in reading, mathematics, science, and social studies). The base year also surveyed one parent, two teachers, and the principal of each selected student.

NELS:88 first follow-up. A first follow-up took place in 1990. At that time, student cohort members, their teachers, and their principals were resurveyed. In addition, the sample was freshened by adding new members to obtain a nationally representative sample of the high school sophomore class of 1990 and to allow cohort comparisons between the NELS:88 sophomores and the HS&B sophomores. The first follow-up gathered data from 18,221 participating students (not including dropouts, who were followed with certainty), including 797 new sample members from grade 10. Of this total sample, 18,176 are sophomores, and this sophomore cohort forms the basis of the current analysis. Eighth-graders from the base-year sample who dropped out or were not 10th-graders in 1990 are not included in the current study.

NELS:88 second follow-up. The second follow-up took place in the spring term of the 1991–92 school year, when most sample members were in their final semester of high school. As with the first follow-up, the second follow-up was freshened with additional members to produce a nationally representative sample of the senior class of 1992. This follow-up provided a culminating measurement of learning in the course of secondary school and also collected information to facilitate investigation of the transition into the labor force and postsecondary education after high school.

NELS:88 third and fourth follow-ups. The third follow-up took place in 1994 when most sample members had completed high school. The fourth follow-up took place in 2000 when most sample members who had attended technical schools or college had completed their postsecondary education.

A.2.3 Education Longitudinal Study of 2002 (ELS:2002)

ELS:2002 is designed to monitor the transition of a national sample of young people as they progress from 10th grade through high school and on to postsecondary education and/or the world of work. In the first year of data collection (the 2002 base year), ELS:2002 measured students' tested achievement in reading and mathematics. ELS:2002 also obtained information from students about their attitudes and experiences. These same students (including those who dropped out of school) were tested and surveyed again in 2004 (and the sample freshened to provide a nationally representative sample of high school seniors), and reinterviewed in 2006.

[2] The entire arc of NELS:88, from its baseline through its final follow-up in 2000, is described in Curtin et al. (2002). More detailed information about the senior year surveys of NELS:88 (including the 1992 dropout study) can be found in Ingels et al. (1994a) and academic transcript collection and processing in Ingels et al. (1995). The quality of NELS:88 data in the in-school rounds is examined in McLaughlin and Cohen (1997). Eligibility and exclusion issues are addressed in Ingels (1996). NCES maintains an updated version of the NELS:88 bibliography on its website. The bibliography encompasses both project documentation and research articles, monographs, dissertations, and paper presentations employing NELS:88 data (see http://nces.ed.gov/surveys/nels88/Bibliography.asp).

ELS:2002 gathers information at multiple levels. It obtains information not only from students and their school records, but also from students' parents, teachers, and the administrators (principal and library media center director) of their schools. Data from their teachers, for example, provide information both about the student and about the teachers' background and activities. This multilevel focus supplies researchers with a detailed picture of the home, community, and school environments. This multiple respondent perspective is unified by the fact that, for most purposes, the student is the basic unit of analysis.[3]

Some key elements in the ELS:2002 longitudinal design are summarized by wave below.

Base Year (2002)

- A baseline survey of high school sophomores was completed in spring term 2002.
- Student questionnaires were administered to collect data on family background, school experience, and other factors.
- Cognitive tests in reading and mathematics were administered.
- Surveys of parents, English teachers, and mathematics teachers were administered. School administrator questionnaires were also collected.
- Sample sizes were approximately 750 schools and over 17,000 students. Schools were the first-stage unit of selection, with sophomores randomly selected within schools.

First Follow-up (2004)

- Most sample members were seniors, but some were dropouts or in other grades.
- A student questionnaire, a dropout questionnaire, an assessment in mathematics, and a school administrator questionnaire were administered.
- Questionnaires were administered to students still in their base-year school and those who transferred to another school, completed school early, or dropped out.
- A freshened sample of seniors was added to the survey to achieve a nationally representative sample of 12th-graders.
- High school transcripts were collected in 2004 from the sample member's base-year school and, for those who transferred (including dropouts), from their last school attended.

Second Follow-up (2006)

- Surveys were administered 2 years after scheduled high school graduation.
- A respondent questionnaire investigated postsecondary and labor force entry and experiences.
- Administrative records from federal student financial aid databases and other sources were linked to individual sample members at the student level.

[3] Base-year course offerings, school administrator, library media center, and facilities data can be used to report on the nation's schools with 10th grades in the 2001–02 school year. However, the primary use of the school-level data (and the purpose of parent and teacher surveys) is to provide further contextual information on the student.

A.3 Analysis Samples and Estimation Procedures

A.3.1 Survey Standard Errors

Because the high school longitudinal studies' sample designs involved stratification, the disproportionate sampling of certain strata, and clustered probability sampling, the resulting statistics are more variable than they would have been if they had been based on data from a simple random sample of the same size.

Several procedures are available for calculating the exact standard errors of estimates in surveys with a complex sample design, such as ELS:2002, where the sample is stratified, clustered, and statistically adjusted to compensate for nonresponse. Weights are provided so that procedures such as Taylor Series approximations, Balanced Repeated Replication (BRR), and Jackknife Repeated Replication (JRR) can be used to estimate correct, design-adjusted standard errors. Advanced statistical programs such as SUDAAN, AM, or Stata produce similar results. The analyses included in this report used Stata's (version 9.0) survey suite of commands and the Taylor Series procedure to calculate standard errors. The code defining the stratification and clustering variables for analysis was (see A.3.2 below for information about weighting):

```
svyset psu [pweight = byf1pnlwt], strata(strat_id)
```

In certain analysis cases, strata were collapsed where one psu per stratum existed.

A.3.2 Sampling, Response Rates, and Weighting

HS&B. This report uses data collected in the HS&B base year (1980) and the first follow-up (1982). Independent variables come from the sophomore data, which were collected in the spring of 1980, and the key outcome is enrollment status in the spring of 1982. The study provided for a national probability sample of 1,015 secondary schools as the first units of selection. In the second stage, 36 seniors and 36 sophomores were selected in each school. Schools with high percentages of Hispanic students, Catholic schools with a high percentage of minority students, alternative public schools, and private schools with high achieving students were oversampled. The sophomore cohort, which is the target population in this report, was followed up in 1982, 1984, 1986, and 1992. In the base year, the unweighted response rate from schools was 70 percent and from students was 84 percent.[4] Case weights were adjusted for nonresponse for both schools and students. High school transcripts were collected from a subsample of the sophomore cohort in 1982 when most of them were seniors. For the transcript subsample of about 18,500 sophomores, transcripts were received for approximately 16,200 students, yielding an unweighted unit response rate of 88 percent.

The HS&B sample used in this report was the 1980 sophomore cohort who were also members of the first follow-up (FU1PART = 1). Including sample members in both the base year and first follow-up resulted in an overall sample size of about 14,100[5] students. Most analyses

[4] Weighted response rates for HS&B are not included in published documentation. Note that all three surveys have two-stage samples (the school is the primary sampling unit, and the student is the second-stage sampling unit). In such a sample, the true response rate is the product of the response rates for the two levels (Seastrom 2003). However, bias analyses have also been conducted for school nonresponse for each of the surveys, to provide further information about possible bias in estimates (see, for example, Spencer, Sebring, and Campbell 1987).

[5] Note that sample sizes from restricted files have been rounded; exact sample sizes are used when data were derived from a public use file.

were weighted by the first follow-up weight (FU1WT). Analyses that use the transcript data include about 13,000 sophomores for whom transcript data were obtained and employ the high school transcript study weight (TRWT). In addition, in the process of equating the HS&B mathematics test data with the NELS:88 test data, a special weight was created by the Educational Testing Service. This weight was used for analyses of the HS&B mathematics test data (TESTWT).

NELS:88. NELS:88 differs from HS&B and ELS:2002 in that the first data collection phase began in the 8th grade rather than the sophomore or senior year; nonetheless, through a freshening procedure, NELS:88 generated nationally representative sophomore and senior cohorts as well. The data used in this report are from sophomores surveyed in the first follow-up conducted in 1990 and who were also participants in the second follow-up conducted in 1992. In the first follow-up, known dropouts were followed with certainty, and a 50 percent subsample was drawn of "potential dropouts"—students who had been absent on both survey and make-up days (though identified as students by their school) or who had not been located subsequently—so that, with intensive additional follow-up, any remaining "hidden dropouts" could be uncovered. In the second follow-up, all dropouts were followed with certainty. The base-year (8th-grade) cohort was drawn from a stratified national probability sample of 1,052 public and private 8th-grade schools from which about 25,000 students participated in the base-year study. Additional follow-ups were implemented in 1994 and 2000, and postsecondary transcripts collected in 2000-2001.

The unweighted response rate at the baseline 8th-grade school level was 70 percent for the initial school selections. Replacement schools were used to achieve a realized sample of 815 public and 237 private schools. The 8th-grade student questionnaire completion rate was 93 percent. Two years later, most students had dispersed to new schools; 99 percent (unweighted) of these schools cooperated. The first follow-up (1990) student questionnaire completion rate was 94 percent unweighted and 91 percent weighted. The unweighted second follow-up (1992) student questionnaire completion rate was 93 percent and 91 percent weighted. Case weights were adjusted for nonresponse.

The NELS:88 sample used was the 1990 sophomore spring cohort (G10COHRT = 1) who were also members of the first follow-up/second follow-up panel (F2F1PNFL = 1). (That is, they were participants in both the 1990 First Follow-up Survey and the 1992 Second Follow-up Survey.) This resulted in an overall sample size of 16,749 students. This sample of students included freshened 1990 sophomores—those students added to the original sample to create a valid probability sample of students enrolled in the 10th grade in the 1989–90 school year. The first follow-up/second follow-up panel weight was used for most of the analyses (F2F1PNWT). NELS:88 also included a transcript study, which was designed to be comparable to the HS&B:80 transcript study. Transcripts were received for approximately 17,300 of the NELS:88 transcript sample of about 19,300 students, yielding an unweighted unit response rate of 88 percent. Analyses of the transcript data used the high school transcript weight (F2TRSCWT) as well as the sophomore cohort sample flag (G10COHRT = 1).

ELS:2002. The ELS:2002 base-year study was carried out in a national probability sample of 752 public, Catholic, and other private schools in the spring term of the 2001–02 school year. Of 17,591 eligible selected sophomores, 15,362 completed a base-year questionnaire. The unweighted response rate at the school level was 62 percent and at the sophomore baseline level student questionnaire completion was 87 percent (both weighted and

unweighted). In the first follow-up (2004), the student questionnaire completion rate was 95 percent unweighted and 93 percent weighted. Case weights were adjusted for nonresponse. In addition to the first follow-up and transcript surveys described above, the second follow-up sample included 14,200 respondents out of an eligible 15,900, yielding an overall weighted unit response rate of 88 percent.

Unless otherwise specified, the weight used in all analyses for ELS:2002 estimates was F1PNLWT, a base-year/first follow-up panel weight in which freshened sample members in 2004 have a weight of zero and do not contribute to estimates. Similarly, some base-year nonrespondents for whom some base-year measures were imputed would be included in this measure, but on other items this small subset of the cases will have missing data, and they do not contribute to the analysis. The analysis sample based on F1PNLWT includes only those sample members who were members of the 10th-grade class of 2002. This analysis sample consisted of 14,713 sample members. All estimates project to the national population of high school sophomores in 2002 and their experiences 2 years later. Analyses based on high school transcript data use the high school transcript weight (F1TRSCWT) and grade 10 cohort flag (G10COHRT = 1); these analyses are based on a sample of about 14,300 transcripts received from the approximately 16,200 members of the 10th-grade cohort, yielding a 90.6 weighted unit response rate. Analyses of the sophomore cohort of 2002 in chapter 4 used a base-year questionnaire weight (BYSTUWT) that results in a sample of 15,360.

Dropout analyses in chapter 3 were conducted with a sample of 677 respondents who answered the first follow-up Not Currently in School questionnaire. This population represents dropouts who were members of the 10th-grade class of 2002. The base-year measures, including their academic achievement, came from their 10th-grade data. Chapter 3 focuses on their decision to leave school and their experiences after they left.

Analyses in chapter 1 incorporate information on high school enrollment or General Educational Development (GED) status in 2006, two years after their expected high school graduation. Enrollment and completion status in 2006 was based on first and second follow-up surveys, as well as information from high school transcripts. Analyses involving 2006 enrollment status were based on grade 10 cohort membership (G10COHRT = 1) and a base-year to second follow-up panel weight (F2BYWT).

Nonresponse adjustment and exclusion rates across HS&B, NELS:88, and ELS:2002. In NELS:88 and ELS:2002, spring dropout status was imputed if not known. Also, in HS&B, NELS:88, and ELS:2002, adjustments were made to the weights to account for nonresponse, both at the school level and the individual level. A classification scheme was used that defined dropouts as one of the basic sample groups, with weighting adjustments effected either through a weighting cell (HS&B, NELS:88) or model-based (ELS:2002) approach. In the weighting cell approach (HS&B, NELS:88), classes were defined in such a way that nonrespondents in the group tended to resemble the group's respondents. The classification scheme included dropouts as a nonresponse adjustment cell—the cells were based on roster sex and roster race and enrollment status groups. In the modeling approach (ELS:2002 in 2004), weights adjusted for nonresponse included a number of predictor variables, one of which was enrollment status. Enrollment status was expressed in three terms: in school, in grade; in school,

out of grade; and out of school (dropout).[6] While such approaches can work to minimize bias of estimates, they assume—as the target population to be projected to—the universe of cohort members who are eligible to participate. If not all members of a grade cohort are eligible, then estimates of, for example, dropout rates may differ from estimates for the full (eligible plus ineligible) population, and to this extent may be misleading.

The analyses in this report do not use the NELS:88 expanded sample and expanded sample weights (expanded samples include sample members who were questionnaire-ineligible for reasons of language fluency or disability). It is likely that both HS&B and NELS:88 therefore slightly underestimate the proportion of the full cohort with a spring-term dropout status, although the exclusion rate in NELS:88, for example, was less than 2 percent. The expanded sample in ELS:2002 was not used because student questionnaire data are missing and follow-up enrollment status was not collected. The exclusion levels were so low (0.6 percent) that while the direction of their effect should be a negative bias that underestimates the cohort dropout rate, the effect will be miniscule.

The HS&B and NELS:88 weighting cell approach that keeps dropouts as a separate classification category is fully documented in Tourangeau et al. (1983) and Ingels et al. (1994a). Analyses of ELS:2002 show that propensity models and weighting cell approaches to nonresponse adjustment give essentially similar results (Siegel, Copello, and Chromy 2007), thus confirming with data from the high school longitudinal studies series conclusions reached by earlier investigators using other data sets (Folsom and Witt 1994; Rizzo et al. 1994; and Kalton and Flores-Cervantes 2003).

Schools run by the Bureau of Indian Affairs (BIA) are excluded from the sample in each of these studies, so American Indian students attending such schools are omitted from these analyses (about 10 percent of all American Indian students attended BIA schools during the time frame that ELS:2002 covers). In ELS:2002, American Indian students comprised 1 percent of the sample, and standard errors for the estimates for this group are large. The dropout rate for this sample of American Indian students cannot be accurately determined.

Additional information about the design of HS&B, NELS:88, and ELS:2002 questionnaire wording, data collection results, structure of the data files, specifications used in creating composite variables, universe coverage, sample selection procedures, weighting methodology, selected standard error estimates, estimates of design effects for categories of students, and results of nonresponse analyses is provided in each study's user manuals and technical reports. For questionnaire-based comparisons in this report, the most relevant documents are the following: Jones et al. (1983); Ingels et al. (1994a); and Ingels et al. (2005b). For documentation of the high school transcript studies, see Jones et al. (1984), Ingels et al. (1995), and Bozick et al. (2006). For detailed reliability and validity information concerning the questionnaires and cognitive tests, the various psychometric and technical reports should also be consulted. On sampling issues, see Ingels et al. (2005b) and Spencer, Sebring, and Campbell (1987). On eligibility and exclusion, see Ingels (1996).

[6] In the course of the periodic student enrollment status updates with schools and pursuit of sample members in the full data collection phase, information was collected, to the extent possible, for all sample members, regardless of whether they eventually agreed to participate. In most cases it was possible to confirm dropout status with both family and school, though in other cases the enrollment status classification is based on a single source. Where no information was available, enrollment status was statistically imputed. Enrollment status information was then used in the nonresponse adjustments.

A.4 Statistical Procedures

A.4.1 Student's *t* Statistic

All comparisons that are discussed in the text of this report, unless explicitly noted, have been tested for statistical significance to ensure that the differences are larger than those that might be expected due to sampling variation. Stand-alone statements reporting individual estimates (i.e., percentages or means) without implicit or explicit comparisons to other estimates do not involve questions of statistical significance. The statistical comparisons in this report were based on the *t* statistic. Whether the difference between two groups is considered statistically significant or not is determined by calculating a *t* value for the difference between a pair of means or proportions and comparing this value to published tables of values, called critical values (cv). The alpha level is an a priori statement of the probability that a difference exists in fact rather than by chance. Analyses in this report use an alpha level of 0.05. No adjustments for multiple comparisons were used.

The *t* statistic between estimates from various subgroups presented in the tables can be computed by using the following formula:

$$t = \frac{x_1 - x_2}{\sqrt{\left(SE_1^2 + SE_2^2\right)}}$$

where x_1 and x_2 are the estimates to be compared (e.g., the weighted means of observed sample members' values in two groups), and SE_1 and SE_2 are their corresponding standard errors. This formula is valid only for independent estimates. When the estimates are not independent (a handful of comparisons in this report are based on dependent estimates), a covariance term was added to the denominator of the formula. For tests comparing correlated samples, the *t* statistic is:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2 - 2(r)se_1se_2}}$$

where E_1 and E_2 are the estimates to be compared, se_1 and se_2 are the corresponding standard errors, and *r* is the correlation between the observed values of two variables.

A.5 Glossary of Variables

The glossary provides information about the variables used in this report, including their source and recoding. For more detailed information about these variables, see the data file documentation for (respectively) HS&B, NELS:88, and ELS:2002: Jones et al. (1983); Ingels et al. (1994a); and Ingels et al. (2005b).

Comment on cross-cohort variables. Some of the analyses in the prior cross-cohort dropout report, on which chapter 4 is based (Kaufman, McMillen, and Sweet 1996), could not be extended to the ELS:2002 sample because of differences between HS&B or NELS:88 variables and ELS:2002 versions. For example, the question about repeating grades could not be estimated in a similar manner as in the prior report because those measures are collected from 8th-grade students in NELS:88 and 10th-grade students in ELS:2002. The ELS students had two more grades in which they could have been held back. These and other examples introduced more

variability into the across-cohort measure than the authors felt could be justified for establishing accurate cross-cohort readings.

A.5.1 Dropout Status

To provide a more detailed picture of dropouts in the United States, NCES defines and calculates different types of dropout rates. There are three basic types of rates calculated—event, status, and cohort—each of which provides unique information about the student dropout population. As a complement to these statistics, NCES also computes high school graduation and completion rates. Definitions of each of the types of dropout rates are as follows:

- **Event** rates describe the proportion of students who leave high school each year without completing a high school program. Offering an annual measure of recent dropout occurrences, event rates can provide important information about educators' effectiveness in keeping students enrolled in school.
- **Status** rates provide cumulative data on dropouts among all young adults within a specified age range. Status rates are generally much higher than event rates because they include all dropouts regardless of when they last attended school. Because status rates reveal the extent of the dropout problem in the population, this rate also can be used to estimate the need for further education and training that will help dropouts participate fully in the economy and life of the nation.
- **Cohort** rates measure what happens to a cohort of students over a period of time. This rate is based on repeated measures (typically grounded in spring term) of a group of students with a shared characteristic (typically, grade) and reveals how many students starting in a specific grade drop out over time. Cohort rates from longitudinal studies often provide more background and contextual data on the students who drop out than are available through the U.S. Census Bureau's Current Population Survey (CPS) or NCES's Common Core of Data (CCD) data collections. In the current report, cohort rates are used.

Besides dropout rates, NCES reports high school graduation and completion rates. It is important to note that no definition of dropout rates is necessarily the inverse of these or other graduation or completion rates. For example, those who graduate from high school late and alternative completers (such as GED recipients) may not be counted as either dropouts or regular graduates (i.e., regular diploma recipients). Thus, a dropout rate of 10 percent does not imply a graduation rate of 90 percent.

In the current report, cohort rates are used based on the three longitudinal high school studies described earlier. None of the three high school cohort studies comprehensively catalogues all dropout events, even though dropout events, when known from school enrollment status updates, are included in specially constructed "ever drop out" variables. This report uses a time-specific status definition of a dropout, specifically focusing on dropouts in the spring 2 years after their sophomore year, when they should have been seniors. Some individuals who are classified as students in the spring of their senior year may have had past dropout events but reentered school in time to be counted as a spring-term student.

Dropout status, spring 1982. The original dropout status variable in HS&B was defined somewhat differently than in the status variable in NELS:88, particularly in their handling of

those in GED program. Specifically, HS&B originally considered those who were in "alternative" programs—such as those leading to a GED, or those who had received a GED—as dropouts, not students or completers respectively. But as can be seen in Kaufman, McMillen and Sweet (1996), those enrolled in an alternative program leading to an equivalency credential or who received an equivalent certificate, such as a GED, are not counted as dropouts. Several modifications were made to the original HS&B definition.

In this report, if FUSTTYPE (HS&B:80 first follow-up student type) was equal to 2 (dropout) and the respondent did not have a GED (FD16 was not equal to 4) and was not currently enrolled in a GED program (FD36AA equal to 1 and FD36F equal to 3), then the sample member was considered a dropout. Otherwise the sample member was considered a student or early completer.

Dropout status, spring 1992. If F2DOSTAT (NELS:88 second follow-up dropout status) was equal to 5 (dropout, no return) a sample member was considered a dropout. Otherwise the sample member was considered a student or early completer.

Dropout status, spring 2004. If F1DOSTAT (ELS:2002 first follow-up dropout status) was equal to 1 (dropout), then the sample member was considered a dropout. Respondents with prior dropout episode but who were in school as of their final enrollment status update at the school's survey day were coded as in-school students. Those still in school, early graduates, and alternative completers (e.g., had received a GED) are implicitly identified as part of the in-school or early completer category.

Dropout status, 2006. While most of this report focuses on the students' dropout status 2 years after the sophomore year, chapter 1 describes more detailed status categories 4 years after the sophomore year when respondents would have had more time to get a diploma or equivalent. Dropout status in 2006 comes from transcript, first follow-up, and second follow-up data (each used to construct F2HSSTAT). Those whose graduation dates were unknown (less than 1 percent of the sample) were counted as summer 2004 or earlier graduates. In this report, those with GEDs or certificates of attendance (no completion dates from F2HSSTAT) were placed into a "GED/certificate of attendance" category, while those still in high school or working toward a GED were combined into a "working toward diploma or equivalency" category, with all others considered to be dropouts.

Assignment of the Not Currently in School questionnaire. ELS:2002 analyses in chapter 3 of this report are based on completion of the Not Currently in School (dropout) questionnaire. For purposes of questionnaire assignment, a dropout was defined as an individual who, during the spring term of 2004, according to the school or home, had not been in school for 4 consecutive weeks or more and was not absent due to accident or illness; or a student who, during the spring term of 2004, had been in school less than 2 weeks after a period in which he or she had missed school for 4 or more consecutive weeks not due to accident or illness. If, however, a student had been classified as a dropout (according to the above definition) in an earlier enrollment status update with the school, but at the time of the base-year school's first follow-up survey day had been back in school 2 weeks or more, that individual was administered the student questionnaire.

A.5.2 Key Cross-Cohort Variables

This section describes the variables used in the chapter 4 cross-cohort analysis and includes information about each cohort's data and any modifications of variables for this analysis. Measures include demographic and family characteristics, educational support factors, educational engagement factors, and academic achievement.

Demographic and family characteristics

Race/ethnicity. The race/ethnicity categories used in this report are American Indian; Asian/Pacific Islander including Native Hawaiian; Black or African American; Hispanic or Latino; More than one race; and White. The more than one race category applies only to ELS:2002. There is no way to determine how an individual in this category in ELS:2002 would have been placed in a race category in the prior studies (4 percent of ELS:2002 sophomores indicated more than one race). In all three studies, race was self-reported and based on a response in the student questionnaire. Hispanic respondents may have been of any race. Non-base-year versions were used where these included updates to base-year participants' missing responses.

HS&B:	Respondents were classified into racial/ethnic groups based on variable RACE2.
NELS:88:	Race was based on the second follow-up composite race variable (F2RACE1).
ELS:2002:	Race was based on the first follow-up composite race variable F1RACE_R. Note that this variable includes more than one race—a category not included in the prior studies. The Native Hawaiian or Other Pacific Islander category is combined with Asian to match prior study codings.

Sex. In NELS:88 and ELS:2002, name was used to impute sex in the rare cases this information was not supplied in the base year by the respondents. Then, non-base-year versions were used when these included updates to base-year participants' missing responses.

HS&B (1980): BB083

NELS:88 (1992): F2SEX

ELS:2002 (2004): F1SEX

Age. Age was calculated as of March 1 of the sophomore year of each cohort (i.e., March 1 of 1980 for HS&B, 1990 for NELS:88, and 2002 for ELS:2002). HS&B and ELS:2002 data include birth year, month, and day, so precise birthdates and ages can be calculated. NELS:88 data contain only birth year and month, so age is calculated based on month and not actual date. This age calculation date is consistent with that used in other NCES reports, such as NCES 2006-327 (Cahalan et al. 2006), and it represents the midpoint for data collection. Calculating age in March more accurately reflects age at the time of the survey.

HS&B (1980): FY105Y, FY105M, FY105D

NELS:88 (1990): BIRTHYR, BIRTHMO

ELS:2002 (2002): BYDOB_R

Family composition. The family composition categories used in this report include intact two-parent families, parent plus guardian, single parent, and other families (e.g., two guardians). Parent-plus-guardian families consist of a mother with a male spouse or partner or a father with a female spouse or partner. The parent-plus-guardian families are not described as stepparent families because the guardians may be stepparents, foster parents, or other guardians (e.g., grandparents). It should be noted that ELS:2002 data were gathered from parents (no family composition information was asked of students in the base year), whereas NELS:88 and HS&B data were asked of students. In addition, the "female guardian" and "male guardian" questions in HS&B reference step-parents and foster parents as examples, but not other types of guardians. In contrast, the NELS:88 guardian questions reference step- and foster parents as well as "other," which could include grandparents or the parent's boyfriend or girlfriend. Grandparents and parent's boyfriend or girlfriend are asked about separately in HS&B and ELS:2002.

HS&B: The following coding scheme was used:

1. Mother and father: If father is in household (BB036B = 1) and mother is in household (BB036D = 1).
2. Parent plus guardian:
   - If father is not in household (BB036B = 0) and mother is in household (BB036D = 1) and male guardian is in household (BB036C = 1); or
   - If mother is not in household (BB036D = 0) and father is in household (BB036B = 1) and female guardian is in household (BB036E = 1).
3. Single parent:
   - If father is in household (BB036B = 1) and no other adult partner is in household (BB036D to BB036E = 0); or
   - If mother is in household (BB036D = 1) and no other adult partner is in household (BB036B to BB036C = 0).
4. Other: All other cases.

NELS:88: The following coding scheme was used:

1. Mother and father: If father is in household (F1S92A = 1) and mother is in household (F1S92D = 1).
2. Parent plus guardian:
   - If father is not in household (F1S92A = 0) and mother is in household (F1S92D = 1) and male guardian or stepfather is in household (F1S92C = 1 or F1S92B = 1); or
   - If mother is not in household (F1S92D = 0) and father is in household (F1S92A = 1) and female guardian or stepmother is in household (F1S92E = 1 or F1S92F).
3. Single parent:
   - If father is in household (F1S92A = 1) and no other adult partner is in household (F1S92D to F1S92F = 0); or

- If mother is in household (F1S92C = 1) and no other adult partner is in household (F1S92A to F1S92C = 0).

4. Other: All other cases.

ELS:2002: The following coding scheme was used.

1. Mother and father: If father and mother are in household (BYFCOMP=1).
2. Parent plus guardian:
   - If mother and male guardian are in household (BYFCOMP=2); or
   - If father and female guardian are in household (BYFCOMP =3).
3. Single parent:
   - If mother is in household and no other adult partner is in household (BYFCOMP =5); or
   - If father is in household and no other adult partner is in household (BYFCOMP=6).
4. Other:
   - Two guardians in household (BYFCOMP=4);
   - Female guardian in household only (BYFCOMP=7);
   - Male guardian in household only (BYFCOMP=8); or
   - Parent/guardian lives with student less than half the time (BYFCOMP=9).

Parent's highest education. In this analysis, the variable is reported in two categories: high school diploma or less; some college or more. This variable represents the highest education level reported by either the mother or father or, where applicable, the male or female guardian.

HS&B: PAREDUC.

NELS:88: F1PARED.

ELS:2002: BYPARED.

Educational support factors

Mother's expectation of child's educational attainment. In each cohort, students were asked how far they thought their mother expected them to go in school. In this report, expectations are categorized as high school or less, vocational school, some college, bachelor's degree, graduate or professional degree, and "don't know." Some categories were collapsed to improve consistency across the cohorts.

HS&B: BB066.

NELS:88: F1S48B F1S48B had values for "mother doesn't care" category and "don't know." As in Kaufman, McMillen, and Sweet (1996), we assumed that those students in NELS:88 who responded "mother doesn't care" would have showed up as "missing" on the HS&B item.

ELS:2002: From BYS65A. Vocational school was not an option on the survey in ELS2002.

Time use and coming to class prepared

Attends class without books. In each survey, 10th-grade students were asked how often they came to class without books. Responses "never" and "seldom" were combined into one category, and "often" and "usually" were combined into another category.

HS&B: YB016B.

NELS:88: BYS78B.

ELS:2002: BYS38A.

Attends class without pencil or paper. In each survey, 10th-grade students were asked how often they came to class without a pen/pencil or paper. Responses "never" and "seldom" were combined into one category, and "often" and "usually" were combined into another category.

HS&B: YB016A.

NELS:88: BYS78A.

ELS:2002: BYS38B.

Homework hours per week. In this report, hours of homework per week are coded as none, 1–10 hours per week, and 11 or more hours per week. However, the coding of the homework variable changed from HS&B to NELS:88 and ELS:2002. HS&B asked about homework in general, whereas the items from NELS:88 and ELS:2002 asked about homework done outside of school (a separate item was used to ask about homework done inside of school). In this analysis, authors assume that the vast majority of students in HS&B interpreted BB015 as referring to homework done outside of school. If this assumption was not valid, then the differences in the amount of homework done between HS&B and NELS:88 should be even greater than shown here. Additionally, the cut points for this variable changed in the classification for doing 10 hours of homework a week. Students in HS&B and ELS:2002 who did exactly 10 hours of homework would be classified as doing 1–10 hours of homework, while students in NELS:88 who did exactly 10 hours of homework would be classified as doing 11 hours or more. These differences should have a minimal impact on the estimates presented here. In particular, the impact on the top level of 1990 to 2002 homework estimates may be partially mitigated by the availability of multiple over-10-hours categories for reporting. For further discussion of the comparability of the HS&B, NELS:88, and ELS:2002 homework variables, see Cahalan et al. (2006), pp. 35-37. For other information about possible changes in time spent on homework over time, see Gill and Schlossman (2006).

HS&B: BB015 (Approximately, what is the average amount of time that you spend on homework a week?). If BB015 equaled 1 (none is assigned) or 2 (I don't do homework) then the student was coded as doing no homework. If BB015 ranged between 3 (less than 1 hour) and 6 (between 5 and 10 hours per week), then the student was coded as doing 1–10 hours per week. If BB015 equaled 7 (more than 10 hours a week), then the student was coded as doing 11 hours or more of homework per week.

NELS:88: F1S36A2 (Overall how much time do you spend on all homework out of school?). If F1S36A2 equaled 0 (none), then the student was coded as doing no homework. If F1S36A2 ranged from 1 (1 hour or less) to 4 (7–9 hours), then the student was coded as doing 1–10 hours per week. If F1S36A2 ranged from 5 (10–12 hours) to 7 (over 15 hours), then the student was coded as doing 11 hours or more of homework per week.

ELS:2002: Categorized from BYS34B (homework done out of school). BYS34B is reported in specific hour increments (0, 1, 2, 3, etc.). Zero hours were coded as none; 1–10 hours were coded as 1–10 hours per week of homework; and 11 or more hours were coded as 11 or more hours of homework per week.

Hours watching TV or video on weekdays. Television or video viewing was reported in the 1996 report, and we have extended these findings to include ELS:2002. Hours of TV or video per day is reported in two categories: 5 hours or less, or more than 5 hours. We urge caution in interpreting this variable, particularly for the HS&B estimates, which may be inflated. The HS&B question began with the prompt "During week days,…" and may have misled students to report total hours per week of television watching, versus hours per day (see Rasinski et al. 1993, appendix B). In addition, the ELS:2002 variable was collected in a continuous format instead of the categorical format of HS&B and NELS:88. Further implications of this difference are discussed in Ingels et al. (2005a), section A.3.5. Complete item questioning is provided below.

There were also some differences between the coding of this variable between the data sets. In NELS:88, students could answer "4–5" or "more than 5" as the highest options for hours per day. In HS&B, students could answer "5 or more hours" as their top category, and ELS:2002 respondents could provide "5" or "6 or more" as the top category. Following Kaufman, McMillen, and Sweet (1996), HS&B students who answered "5 or more hours" were coded as such; NELS:88 students who answered "more than 5 hours," on the other hand, were coded as "5 or more hours," despite the exact level of 5 hours of daily watching being captured in NELS:88's second-to-top category. In ELS:2002, students were coded as "5 or more hours" if they reported exact hours as 5 or answered "6 or more." However, this coding difference is unlikely to create all (or even most) of the differences shown in this analysis. For example, there were far fewer students in NELS:88 who watched 4 or more hours of TV or video than watched 5 or more hours of TV in HS&B.

HS&B: From BB048, "During weekdays, how many hours per day do you watch TV?"

NELS:88: From F1S45A, "During the school year, how many hours a day do you usually watch TV or videotapes on weekdays?" Options included less than 1, 1–2, 2–3, 3–4, 4–5, and more than 5.

ELS:2002: From BYS48A, "During the school year, how many hours a day do you usually watch TV or videotapes/DVDs on weekdays?" Options included the number of hours watched, up to 6 or more hours.

Hours worked per week. In this report, hours worked per week refers to working for pay during the school year at the time of the survey. Hours of work per week is coded in two categories: 20 hours or less, or more than 20. Those who were not working at the time of the survey were grouped in the 20 hours or less category.

HS&B: Based on BB019 (Worked for pay last week) and BB022 (How many hours do/did you work on your current or most recent job?). If the student had worked for pay last week and if BB022 ranged from 5 (22–29 hours) to 7 (35 hours or more), then the student was coded as working more than 20 hours per week.

NELS:88: Based on F1S84 (Are you currently employed?) and F1S85 (How many hours do/did you usually work on your current or most recent job?). If the student was currently employed and F1S85 ranged from 3 (21–30 hours) to 5 (more than 40 hours), then the student was coded as working more than 20 hours per week.

ELS:2002: Based on BYS72 (Have you ever worked for pay/are you currently employed) and BYS75 (How many hours do/did you work each week on your current or most recent job?) Unlike the other two surveys, BYS75 reports the hours worked without collapsing them into categories. If the student was currently employed and worked more than 20 hours per week, the student was coded as working more than 20 hours per week. Students with had a missing value on BYS75 but who reported current employment in BYS72 were coded as having 0 hours.

Academic Achievement

Credits earned. In all years, estimates of credits earned were based on high school transcript data classified by the Secondary School Taxonomy of courses (SST). These high school credits were standardized as Carnegie units from the original school transcripts. Categories were less than 5 credits earned, 5 to less than 10 credits earned, and 10 or more credits earned. In tables 21 through 23, credits earned refers to all courses (in all subjects, including subjects such as physical education and art) taken in high school through 10th grade; in table 24, credits earned refers to credits in academic courses taken in the 2 calendar years leading through 10th grade. A filter was used to identify those respondents with complete transcripts. Since most HS&B transcript-identified courses are defined as full-year, and since a cross-cohort comparable measure was desired over 2 years (sophomore year to 2 years later), a filter of four courses listed in each of the 2 academic years was used. In table 24, credits earned refers to academic courses (i.e., only courses in English, mathematics, science, social studies, and foreign language).

Grade point average (GPA). In all years, estimates were based on GPAs standardized to a common grading scale (0 to 4.0) from the student's high school transcripts. For tables 21 through 23, GPAs were based on all courses taken in high school through 10th grade; for table 24, GPA was based on academic courses that were taken in the 2 calendar years leading through 10th grade. The four-course filter used for credits earned (see above) was also used with GPA to identify respondents with complete transcripts in the 2 years examined.

Mathematics test quarter. In all years, this measure is based on math tests developed specifically for HS&B, NELS:88, and ELS:2002 and administered in the sophomore year of each study. This variable is norm-referenced; that is, it is based on weighted distributions of the math test score observed within each cohort (compared to the criterion-referenced estimated number-right score, described next). The scores on the distribution are divided into four equal-population quarters; the middle two quarters are collapsed in the current report.

Mathematics estimated number-right score. The IRT[7] estimated number-right scores are overall, criterion-referenced measures of status at a point in time. Scores range from 0 to 58. The criterion is the set of skills defined by the test framework and represented by the assessment item pool. IRT common-item equating was used to put HS&B and ELS:2002 10th-grade mathematics scores on the NELS:88 1990 scale. Further documentation of the NELS:88 1990 mathematics scale can be found in the NELS:88 first follow-up final technical report (Ingels et al. 1994b, chapter VI) and in the ELS:2002 base-year data file user's manual (Ingels et al. 2004). Please note that the NELS:88-scaled HS&B IRT-estimated number-right score is not found on any released data sets, but was created for an earlier analysis report (see Cahalan et al. 2006, p. A-22).

A.5.3 ELS:2002-Specific Variables

This section describes variables used in chapters 1 and 2. Measures that were also included in the cross-cohort analysis in chapter 4 have been described in section A.5.2, Key Cross-Cohort Variables. Measures include demographics, family characteristics, school characteristics, educational expectations, teacher ratings, school readiness, and academic achievement.

Demographic characteristics

Race, **sex**, and **age** are described in section A.5.2, Key Cross-Cohort Variables.

Native language. BYSTLANG. English is native language (yes/no).

Family characteristics

Family composition and **parental educational attainment** are described in section A.5.2, Key Cross-Cohort Variables.

Family socioeconomic status (SES) quarter. BYSES1QU. SES quarter indicates the part of the population distribution of a composite socioeconomic status score to which a student belongs: the bottom 25 percent (below the 25th percentile score cutpoint), the middle 25–50 percent (between the 25th and 50th percentile), the middle 50–75 percent (between the 50th and 75th percentile), or the top 25 percent (above the 75th percentile). The composite SES score on which the quarters are based derives from five equally weighted, standardized components: father's/guardian's education, mother's/guardian's education, family income, father's/guardian's occupation, and mother's/guardian's occupation. Each of these five composite variables was imputed if missing. Parent education, parent occupation, and family income were based on parent's reports, but parent education and occupation were based on student reports if the parent information was missing. Missing information on each variable was otherwise imputed. The parent questionnaire included parent occupation codes determined by the respondents themselves (in other words, parents first supplied the name of their current or most recent job, then were

[7] IRT stands for Item Response Theory. IRT is a test analysis procedure that applies mathematical models to the probability that any given examinee will provide a correct test response. Specifically, IRT uses patterns of correct, incorrect, and omitted answers to obtain ability estimates that are comparable across different test forms within a domain. In estimating a student's ability, IRT also accounts for each test question's difficulty, discriminating ability, and a guessing factor. For information on IRT, see Embretson and Reise (2000) or Hambleton, Swaminathan, and Rogers (1991).

asked to classify their job into one of 16 broad categories). If the reported occupation name was left uncoded or if the student supplied the parent's occupation (students were not asked to subsequently classify parent's job), project staff coded those occupations, if possible. The 1961 Duncan occupational prestige score index was used to assign prestige scores to occupational codes (Duncan 1961). The Duncan index was updated in 1989 (Nakao and Treas 1992). This version is available in the NELS:88 and ELS:2002 data, but the update was not available for HS&B and cannot be used for cross-cohort comparisons. However, Nakao 1992 notes the high degree of temporal stability in occupational prestige. This is reflected, for example, by the fact that the two versions of SES produced for ELS:2002—differing only in the use of the 1961 or 1989 occupational prestige scores—have a 0.98 correlation.

Number of times student changed schools. BYP45. Parents were asked how many times their 10th-grader had changed schools other than grade promotions.

School characteristics

These measures focus on the type of school the respondent attended as a sophomore.

Percent minority. CP02PMIN from the NCES Common Core of Data. The percentage of the school that is not White. The distribution of this percentage measure was divided into four equal-size quarters (percentage groups) for this report. The lowest quarter (lowest 25 percent) corresponds to schools with 0–9 percent minority; the second quarter (25th–50th percent) corresponds to schools with 10–24 percent minority; the third quarter (50th–75th percent) corresponds to schools with 25–57 percent minority; and the highest quarter (top 75 percent) corresponds to schools with more than 57 percent minority.

Percentage eligible for free or reduced-price lunch program. CP02FLUN from NCES Common Core of Data. Schools report the percentage of students who qualify for the free or reduced-price lunch program to states. The distribution of this percentage measure was divided into four equal-size quarters (percentage groups) for this report. The lowest quarter (lowest 25 percent) corresponds to schools with 0–9 percent of students eligible; the second quarter (25th–50th percent) corresponds to schools with 10–18 percent of students eligible; the third quarter (50th–75th percent) corresponds to schools with 19–34 percent of students eligible; and the highest quarter (top 75 percent) corresponds to schools with more than 34 percent of students eligible for free or reduced-price lunch.

Sector. BYSCTRL. School sectors are public, Catholic, and other private schools.

Educational expectations

Students, parents, math teachers, and English teachers were each asked how far they expected the sophomore to go in school. For this report, the original categories were collapsed into these five: less than high school, high school diploma, some college, bachelor's degree, and graduate or professional degree.

Student's educational expectations. BYSTEXP.

Parent's educational expectations. BYP81.

English teacher's expectations. BYTE20.

Math teacher's expectations. BYTM20.

Academic preparedness

Teacher ratings. English and math teachers responded separately to questions about the student's behavior:

- Does this student seem to relate well to other students in your class? (BYTE05, BYTM05).
- Is the student exceptionally passive or withdrawn in class? (BTYE06, BYTM06).
- Does this student talk with you outside of class about schoolwork, plans for after high school, or personal matters? (BYTE07, BYTM07).
- How often is the student attentive in your class? (BYTE16, BYTM16).
- How often is the student disruptive in your class? (BYTE17, BYTM17).

In the first three questions, teachers could respond "yes," "no," or "don't know," and this report shows for each question whether both teachers said no, one teacher said yes, or both teachers said yes. In the last two questions, teachers could respond "never," "rarely," "some of the time," "most of the time," or "all of the time." This report shows whether both teachers thought the student was not attentive, one though the student was attentive most or all of the time, and both teachers thought the student was attentive most or all of the time. Finally, the report shows whether both teachers thought the student was disruptive, one thought the student was never or rarely disruptive, and both teachers thought the student was never or rarely disruptive.

Academic engagement. Academic engagement is a summary measure of responses to the following variables:

- How many times during the first semester or term were you late to school? (BYS24A).
- How many times during the first semester or term did you cut or skip class? (BYS24B).
- How many times during the first semester or term were you absent from school? (BYS24C).
- How much do you agree or disagree that the subjects you're taking are interesting and challenging? (BYS27A).

For the first three variables, response options were "never," "1–2 times," "3–6 times," "7–9 times," and "10 or more times"; these were coded from 5 to 0, respectively (i.e., lower values representing higher frequencies of tardiness, etc.). For the last item, response options were "strongly disagree," "disagree," "agree," and "strongly agree"; these were coded 1 through 4, respectively. The variables were summed together and the resulting summary engagement variable ranged from 1 to 19. A factor analysis of these four variables revealed a single factor (eigenvalue = 1.04) with loadings of 0.61, 0.57, 0.51, and 0.29, respectively. Alpha (reliability) for the combined index was 0.60. The final academic engagement measure is based on 25th and 75th percentile cutpoints: engagement scores from 0 to 13 were categorized as "low," 14 and 15 as "middle," and 16 to 19 as "high."

Academic preparation. Academic preparation is a summary measure of student responses to the following questions:

- How often do you go to class without pen/pencil or paper? (BYS38A).
- How often do you go to class without books? (BYS38B).
- How often do you go to class without homework complete? (BYS38C).

Each variable's responses were "never," "seldom," "often," and "usually," and each was coded 4 to 1, respectively (i.e., lower values representing higher frequencies of unpreparedness). A factor analysis of these three variables revealed a single factor (eigenvalue = 1.65) with loadings of 0.78, 0.78, and 0.65, respectively. The range of the resulting summed preparation variable was 0 to 12. Alpha (reliability) of the combined index variable was 0.81. Variables were categorized based on 25th and 75th percentile cutpoints. Preparation scores from 0 to 9 were categorized as "low," 10 as "middle," and 11–12 as "high."

Parent-reported number of grades repeated. Based on summarized measure from BYP48A through BYP48K, which asked about the specific grades repeated.

Disability status reported by parent. BYP49. Parents were asked, "In your opinion, does your 10th-grader have a learning, physical, or emotional disability?" Answers are yes/no.

Student behavior problem reported by parent. BYP51. Parents were asked whether their 10th-grader had ever been considered to have a "behavior problem at school." Answers are yes/no.

Academic achievement

These measures describe the student's academic achievement by the spring of sophomore year, based on an assessment specifically designed for the ELS:2002 study. Math test scores and credits earned are described in section A.5.2, Key Cross-Cohort Variables. For the composite, math, and reading test quarters, the score divides the weighted population estimated achievement distributions into four equal groups. Quarter one is the lowest-achieving group, and quarter four is the highest. In this analysis, the middle two quarters were collapsed.

Composite test quarter (reading and math test scores). BYTXCQU.

Math test quarter. BYTXMQU.

Reading test quarter. BYTXRQU.

A.5.4 2004 Dropout-Specific Questionnaire Items

The following items, all used in chapter 3, were derived from the Not Currently in School questionnaire administered as part of ELS:2002's first follow-up. For dropout status definitions, see section A.5.1, Dropout Status. For the classification variables sex and race/ethnicity, see section A.5.2, Key Cross-Cohort Variables.

Alternative program participation. F1D34. Dropouts were asked if they had ever participated in an alternative program, in which they took courses or received services that other students did not. Responses to this item are yes/no.

Dropout's educational expectations. F1D57. The dropouts' educational expectations question had slightly different response categories than the base-year educational expectations question described in section A.5.3, ELS 2002-Specific Variables. Expectations for those who had left school include less than high school graduation, GED or other equivalency only, high school graduation only, some college, bachelor's degree, advanced degree, and "don't know." The options "attend or complete a 1- or 2-year program in a community college or vocational school" and "attend college" were combined into the some college category. Master's degree and PhD, JD, or equivalent are included in the advanced degree category.

Employment status. Dropouts were asked about the number of jobs held since leaving high school (F1D59), their current or most recent job (F1D60), and whether they still had their most recent job (F1D62). Those who were not currently working were coded as not employed.

Hours of work each week. Dropouts were asked about the number of hours they worked each week in the job that they currently held (F1D65). In this analysis, the hours are grouped into four categories: less than 25, 25–39, 40, or more than 40.

Reasons left school. Dropouts were asked questions about the reasons they left school. The survey included a series of items (F1D29A through F1D29U) using the following question stem: "Here are some reasons other people have given for leaving school. Which of these would you say apply to you?" Each response is coded yes or no. Respondents could say yes to any number of items.

School and parent responses to leaving school. Dropouts were asked, "Did anyone from your school do any of the following the last time you stopped going to school?" (F1D31A through F1D31L) and "Did your parents or guardians do any of the following the last time you stopped going to school?" (F1D32A through F1D32M). Response options are listed in table 10 of this report. Each response is coded yes or no, and respondents could say yes to any number of items.

A.6 Comparability of Data Across Cohorts

A major question for time series analyses identifying changes across cohorts is the comparability of the data sets to be used. Although the three studies have been designed to produce comparable results, differences between them may affect the comparability and precision of estimates.

A.6.1 Eligibility

Similar definitions were used to determine school eligibility across the studies. Vocational schools, Bureau of Indian Affairs schools, special education schools, and ungraded schools were excluded from the sample. To be in the studies, schools had to be operational with membership in the appropriate grades (10^{th} grade for HB&B and ELS, 8^{th} grade for NELS). Schools were contacted based on a national probability sample, and private schools were oversampled.

There were greater differences in student eligibility. In HS&B and NELS:88, students who were unable to complete the survey instruments (the assessment battery and questionnaire) owing to severe mental or physical disability, or a language barrier, were declared ineligible and

excluded from the sample. While the proportion excluded in HS&B is unknown,[8] ineligibility and exclusion in NELS:88 was carefully monitored. In the base year, just over 5 percent of 8th-graders were excluded from the study. A special substudy was conducted to examine two issues: whether eligibility status would change over time for these students, and how many dropped out. In the NELS:88 first follow-up, it was determined that these exclusions did indeed affect the dropout rate. Specifically, 6 percent of cohort members in the eligible sample were dropouts in the spring term 2 years after 8th grade compared to 6.8 percent based on the expanded (i.e., full) sample (Ingels 1996). This means that if the full cohort is taken as the target population, the eligible-only dropout rate shows a bias of -0.8. Bias can be seen in subgroup estimates as well. Bias for Asians/Pacific Islanders is -0.9; for Hispanics, -0.4; for Blacks, -0.2; and for Whites, -0.3 (Ingels 1996, table A).[9] In addition to having a dropout rate almost triple that of their peers, only 58 percent of the excluded base-year students who were in school 4 years later (1992) were seniors; 42 percent were behind the modal grade progression for the cohort (Ingels 1996, table 3). Clearly ineligible students in NELS:88 (and, presumably, HS&B) have very different high school completion trajectories than the cohort as a whole. However, in ELS:2002, just over one half of 1 percent of the sample were ineligible, and their status will not affect the overall rates, though specific subgroup comparisons may be affected.

A.6.2 Sample Design Differences

Differences in sampling rates, sample sizes, and design effects across the studies also affect precision of estimation and comparability. Asian/Pacific Islander students, for example, were oversampled in NELS:88 and ELS:2002 but not in HS&B, where their numbers were quite small. Also, although Catholic schools were oversampled in two of the three studies, HS&B had few (only 38) private non-Catholic schools.

The base-year (1980) participating sample in HS&B numbered 30,030 sophomores. In contrast, 15,362 sophomores participated in the base year of ELS:2002. Cluster sizes within schools were larger for HS&B (on average, 30 sophomores per school) than for ELS:2002 (just over 20 sophomores per school; larger cluster sizes are better for school effects research but carry a penalty in greater sample inefficiency). Mean design effect (a measure of sample efficiency)[10] also is quite variable across the studies: for example, for the modal 12th-grade year, 3.6 for HS&B and 3.7 for NELS:88, with the most favorable design effect, 2.3, for the ELS:2002 first follow-up. Other possible sources of difference between the cohorts that may impair change measurement are different levels of sample attrition over time and changes in the population of nonrespondents. To adjust for nonresponse, a weighting cell approach was used in HS&B and NELS:88, and a modeling approach in ELS:2002. ELS:2002 data were used to conduct a methodological comparison of the propensity modeling and weighting cell approaches to

[8] Though the proportion of excluded students in HS&B is unknown, attempts to match the HS&B sample to national disability estimates suggest substantial exclusion of this group (see Hoachlander 1991).

[9] For excluded students, race/ethnicity and sex were available from the school rosters, and enrollment status was determined via the enrollment status screener (see Ingels 1996, appendix B). Students whose eligibility status changed were brought back into the sample, surveyed, and tested. They responded to the New Student Supplement, which had more complete student information.

[10] Effective sample size can be quite different from the nominal sample size; effective sample size is more meaningful than raw sample size in terms of statistical analysis—for example, the sampling variance of a mean standard score is equal to the reciprocal of the effective sample size, not the reciprocal of the raw sample size. Effective sample size may be defined as the raw sample size divided by the design effect.

nonresponse adjustment (see appendix H of Ingels et al. 2007). However, and in conformity to the literature, the approaches yield highly similar weights. Across the three studies, similar but only sometimes identical adjustment variables were used.

A.6.3 Participation Rates

Response rates also differ somewhat across the studies, although nonresponse-adjusted weights were generated for each of the cohorts. At the school level, response rates were somewhat higher in HS&B and NELS:88 (unweighted, around 70 percent) than in ELS:2002 (unweighted, 62 percent). School nonresponse bias analyses were performed for each study and may be found in the study documentation. At the student level, there is even more variation in response rates. In HS&B, 84.6 percent of 1980 sophomore cohort members completed a questionnaire (Zahs et al. 1995, p. 66). In the NELS:88 second follow-up, 92.5 percent of students participated (Ingels et al. 1994a), and in ELS:2002, 93.6 percent of the in-school sample was surveyed in the first follow-up (all response rates are unweighted).

A.6.4 Changing Race Definitions

In some cases, federal race definitions or preferences for the means of collecting ethnicity and race data have changed. In HS&B and NELS:88, students were asked to mark one race only. Based on revised race-reporting guidelines issued by the Office of Management and Budget (OMB), ELS:2002 added a new race category, and, more important, students are now allowed to mark all that apply, thus generating a further category, More than one race.

The new race category is Native Hawaiian or Other Pacific Islander. For purposes of cross-cohort comparisons, cases identified in ELS:2002 as Native Hawaiian or Other Pacific Islander were combined with the Asian category to achieve comparability with earlier studies.

However, for students who considered themselves to be more than one race, there is no ready means to map them back into a one-race scheme. With five race categories and with values based on a single race reported, none reported, the 10 possible combinations of 2 races, the 10 possible combinations of 3 races, the 5 possible combinations of 4 races, and the possibility of a combination of all 5 races, there are 32 separate race categories. It is impossible to know, for example, whether a student who marked White and Black in ELS:2002 would have marked White or Black in NELS:88, in which only one race was allowed. There are over 700 non-Hispanic more-than-one-race sophomores recorded in the ELS:2002 base-year data set, but the distorting effect on cross-cohort estimation is likely to be greatest for small population subgroups with many claimants to multiple race, such as the American Indian category. Analysts should be cautious, then, about conclusions concerning racial subgroup differences between 1980 and 2004. However one can reasonably compare the dropout rates of more-than-one-race students to other groups in 2004. Note that Hispanic ethnicity, in all studies, took precedence over a racial categorization.

A.6.5 Differences of Questionnaire Content

Despite the intention to preserve a core of comparable items, for many reasons, some questions have changed, while others have been added or dropped. For example, in a section on home resources in the student questionnaire, the question about having a specific place to study was not included in ELS:2002, but ELS:2002 added a question about having access to the Internet. Across the cohorts, questions may be identical in content and format or may differ in

one or more ways: the question, item, or response wording; the order in which response options were presented; the manner in which the data were collected (e.g., categorical response option versus open-ended response fields, instructions to mark one versus mark all that apply); and the population to which the question applies. For this report, items thought to be comparable have been selected, though sometimes with caveats and qualifications. When we included variables with slightly different categories or wording, such as hours of TV watched on weekdays or mother's expectations for child's educational attainment, such changes are noted in section A.5.2, Key Cross-Cohort Variables.

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Appendix B
Standard Error Tables

Table B-1. Standard errors for percentage distribution of spring 2002 high school sophomores and their high school completion status, by student background characteristics: Spring 2004 and 2006

	Spring 2004		2006				
Characteristic	In school or early completer	Dropout	Summer 2004 or earlier graduate[1]	Fall 2004 or later graduate	GED/ certificate of attendance	Working toward diploma or equivalency	Dropout
Total	0.33	0.33	0.50	0.19	0.23	0.22	0.28
Sex							
Male	0.44	0.44	0.66	0.30	0.35	0.36	0.39
Female	0.39	0.39	0.60	0.23	0.29	0.24	0.31
Race/ethnicity[2]							
American Indian	1.87	1.87	5.26	1.42	3.34	2.17	3.97
Asian/Pacific Islander	0.59	0.59	1.05	0.58	0.46	0.55	0.50
Black	0.93	0.93	1.26	0.55	0.65	0.73	0.68
Hispanic	0.94	0.94	1.39	0.62	0.71	0.55	0.91
White	0.34	0.34	0.52	0.17	0.29	0.24	0.27
More than one race	1.40	1.40	1.85	1.14	1.20	0.99	1.05
Socioeconomic status quarter							
Lowest	0.73	0.73	1.00	0.47	0.51	0.57	0.70
Middle two	0.43	0.43	0.61	0.25	0.32	0.29	0.31
Highest	0.30	0.30	0.49	0.19	0.33	0.20	0.20
Composite test quarter							
Lowest	0.76	0.76	1.18	0.54	0.57	0.63	0.75
Middle two	0.44	0.44	0.53	0.25	0.33	0.26	0.28
Highest	0.27	0.27	0.37	0.19	0.26	0.12	0.14

[1] Includes all students with unknown graduation dates (less than 1 percent of the total sample).
[2] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Educational Longitudinal Study of 2002 (ELS:2002), "Base Year through Second Follow-up, Student Surveys and High School Transcripts Study, 2002–06."

Table B-2. Standard errors for dropout rate and percentage distribution of dropouts from sophomore class of 2002, by demographic characteristics: Spring 2004

Demographic characteristic	Dropout	Percent of dropouts	Percent of sophomores
Total	0.33	†	†
Sex			
Male	0.44	2.06	0.53
Female	0.39	2.06	0.53
Race/ethnicity[1]			
American Indian	1.87	0.33	0.20
Asian/Pacific Islander	0.59	0.38	0.26
Black	0.93	2.11	0.66
Hispanic	0.94	2.61	0.87
White	0.34	2.46	0.98
More than one race	1.40	0.87	0.23
Age[2]			
15 and below	0.30	1.78	0.52
16	0.43	2.23	0.52
17 and above	1.76	2.18	0.32
Native language			
Non-English	1.10	2.39	0.58
English	0.29	2.39	0.58

† Not applicable.
[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.
[2] Age as calculated on March 1, 2002.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, 2002–04."

Table B-3. Standard errors for dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by family characteristics: Spring 2004

Family characteristic	Dropout rate	Percent of dropouts	Percent of sophomores
Family composition			
Mother and father	0.35	2.43	0.66
Mother or father and guardian	0.84	1.96	0.45
Single parent	0.71	2.21	0.47
Other[1]	1.40	0.91	0.22
Socioeconomic status quarter			
Lowest	0.76	2.48	0.70
Middle two	0.40	2.49	0.62
Highest	0.30	1.22	0.75
Parents' education			
High school or less	0.75	2.55	0.65
Some college	0.44	2.20	0.56
Bachelor's degree	0.50	1.63	0.48
Graduate or professional degree	0.49	1.29	0.54
Frequency of changing schools			
0	0.38	2.70	0.68
1	0.60	2.30	0.48
2	0.92	1.96	0.38
3	1.11	1.95	0.33
4	1.67	1.64	0.24
5 or more times	1.57	1.45	0.25

[1] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, 2002–04."

Table B-4. Standard errors for dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by characteristics of school attended: Spring 2004

School characteristic	Dropout rate	Percent of dropouts	Percent of sophomores
School sector			
Public	0.34	0.37	0.30
Catholic	0.17	0.12	0.17
Other private	0.78	0.34	0.24
Percent minority			
Lowest quarter	0.34	2.85	1.35
Second quarter	0.70	2.53	1.72
Third quarter	1.00	2.47	1.78
Highest quarter	1.05	3.14	1.56
Percentage of school population receiving free or reduced-price lunch			
Lowest quarter	0.36	3.33	1.94
Second quarter	0.66	3.13	1.97
Third quarter	1.74	2.86	2.02
Highest quarter	2.98	3.27	1.82

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, 2002–04."

Table B-5. Standard errors for dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by expectations for student's educational attainment: Spring 2004

Source and educational expectation	Dropout rate	Percent of dropouts	Percent of sophomores
Student's expectations			
Less than high school	5.14	1.06	0.11
High school	1.78	2.31	0.33
Some college	1.36	2.57	0.42
Bachelor's degree	0.34	2.06	0.53
Graduate or professional degree	0.35	2.04	0.61
Parent's expectations for student			
Less than high school	‡	‡	‡
High school	2.03	1.25	0.20
Some college	1.21	1.71	0.38
Bachelor's degree	0.41	2.03	0.56
Graduate or professional degree	0.38	1.86	0.54
English teacher's expectations for student			
Less than high school	3.41	2.12	0.24
High school	1.12	3.05	0.65
Some college	0.59	2.35	0.64
Bachelor's degree	0.28	1.79	0.73
Graduate or professional degree	0.30	0.70	0.54
Math teacher's expectations for student			
Less than high school	4.25	1.78	0.19
High school	1.10	2.91	0.57
Some college	0.64	2.81	0.60
Bachelor's degree	0.29	1.85	0.70
Graduate or professional degree	0.07	0.15	0.48

‡ Does not meet reporting standards.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, 2002–04."

Table B-6. Standard errors for dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by English and math teachers' ratings: Spring 2004

Teacher's rating of student	Dropout rate	Percent of dropouts	Percent of sophomores
Relates well to others			
Both say no	2.95	2.29	0.31
One says yes	1.09	2.71	0.50
Both say yes	0.36	3.14	0.57
Passive/withdrawn			
Both say no	0.37	3.06	0.54
One says yes	1.13	3.08	0.52
Both say yes	2.59	1.78	0.27
Talks to teacher outside of class			
Both say no	0.58	2.90	0.77
One says yes	0.58	2.91	0.65
Both say yes	0.65	2.00	0.61
Attentive in class			
Both say no	1.64	3.21	0.53
One says most/all of time	0.74	3.20	0.67
Both say most/all of time	0.31	2.60	0.80
Disruptive in class			
Both say yes	1.78	2.06	0.34
One says never/rarely	0.99	2.73	0.54
Both say never/rarely	0.37	2.95	0.68

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, 2002–04."

Table B-7. Standard errors for dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by school readiness indicators: Spring 2004

School readiness indicator	Dropout rate	Percent of dropouts	Percent of sophomores
Academic preparation index[1]			
Low	0.52	2.37	0.62
Middle	0.67	1.91	0.40
High	0.34	1.88	0.62
Academic engagement index[2]			
Low	0.75	2.49	0.58
Middle	0.44	2.16	0.51
High	0.33	1.60	0.58
Hours of homework per week[3]			
0	1.35	1.72	0.31
1–2	0.63	2.37	0.58
3–5	0.56	2.13	0.49
6–10	0.53	1.69	0.45
11 or more	0.61	1.52	0.45
Parent-reported number of grades repeated[4]			
0	0.27	2.66	0.41
1	1.37	2.57	0.39
2 or more	5.60	1.16	0.11
Parent-perceived disability			
No	0.31	2.46	0.39
Yes	1.08	2.46	0.39
Parent-perceived behavior problem at school			
No	0.28	2.61	0.33
Yes	1.83	2.61	0.33

[1] Academic preparation categorization is based on the 25th and 75th percentiles of an index measure. The index was based on the summed responses to three variables: How often student goes to class without pencil or paper, without books, and without homework done. Each measure had four response options of never, seldom, often, and usually, and numerical values going from 4 to 1, respectively (reverse coded). Range of this summed variable is 3–12, with low category being values of 3–9, middle being 10, and high being 11–12. See appendix A, section A.5.3, for more information.

[2] Academic engagement categorization is based on the 25th and 75th percentiles of an index measure. The index was based on the summed responses to four variables: During the first semester or term, how often student is tardy, cuts class, is absent; and agreement or disagreement with statement that classes are interesting and challenging. For "how often" variables, response options were "never," 1–2 times, 3–6 times, 7–9 times, and 10 or more times; for statement of agreement variable, responses were "strongly disagree," "disagree," "agree," and "strongly agree." Numerical values were assigned from 4 to 1 (reverse coded) for "how often" variables and 1 to 5 for statement of agreement variable. Range of this summed variable is 4–19, with low category being values of 4–13, middle being 14–15, and high being 16–19. See appendix A, section A.5.3, for more information.

[3] Reflects hours of homework done out of school.

[4] Number of grades repeated before 10th grade.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), “Base Year and First Follow-Up, 2002–04.”

Table B-8. Standard errors for dropout rate and percentage distribution of dropouts from the sophomore class of 2002, by academic achievement indicators: Spring 2004

Achievement characteristics	Dropout rate	Percent of dropouts	Percent of sophomores
Composite achievement test quarter			
Lowest	0.76	2.26	0.70
Middle two	0.44	2.22	0.59
Highest	0.27	1.06	0.69
Math test quarter			
Lowest	0.83	2.41	0.69
Middle two	0.44	2.30	0.55
Highest	0.26	1.02	0.71
Reading test quarter			
Lowest	0.71	2.06	0.69
Middle two	0.45	2.07	0.58
Highest	0.34	1.28	0.62
High school credits earned by spring of sophomore year			
Below 5	8.17	1.17	0.08
5 to less than 10	3.24	2.22	0.21
10 or more	0.25	2.22	0.24

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year, 2002," "First Follow-up, 2004," and "High School Transcript Study, 2004."

Table B-9. Standard errors for percentage of dropouts from the high school sophomore class of 2002 reporting given reason for leaving school, by sex: Spring 2004

Reason for leaving school	Overall	Male	Female
School-related reasons			
Any school-related reason	1.79	2.05	2.87
Missed too many school days	2.04	3.04	3.17
Thought it would be easier to get GED	2.28	3.25	3.17
Was getting poor grades/failing school	2.05	3.02	3.15
Did not like school	2.23	3.06	3.04
Could not keep up with schoolwork	2.00	2.75	3.13
Thought could not complete course requirements	2.03	2.56	3.01
Could not get along with teachers	2.10	2.95	2.77
Did not feel belonged there	1.90	2.47	2.73
Could not get along with other students	1.88	2.25	2.90
Was suspended	1.78	2.56	2.15
Changed schools and did not like new one	1.50	2.32	1.73
Thought would fail competency test	1.31	1.41	2.37
Did not feel safe	1.35	1.89	2.06
Was expelled	1.39	2.22	1.12
Family-related reasons			
Any family-related reason	2.26	2.71	3.35
Was pregnant	2.95	†	2.95
Had to support family	2.07	2.41	3.03
To care for a member of the family	1.75	2.40	2.29
Became a father/mother of a baby	1.46	1.35	2.62
Married or planned to get married	1.10	1.00	2.23
Employment-related reasons			
Any employment-related reason	2.24	3.22	3.69
Got a job	2.05	2.87	3.31
Could not work at same time	2.04	2.84	3.12

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."

Table B-10. Standard errors for percentage of dropouts from the high school sophomore class of 2002 reporting responses from their parent or school to their dropout decision: Spring 2004

Response	Parent response	School response
Percent with any response	1.06	1.85
Number of responses (mean)	0.13	0.10
Responses by both parents and schools		
Tried to talk the student into staying in school	1.99	2.35
Offered to help student with personal problems	2.52	1.76
Offered to send student to another school	2.27	1.85
Offered to help student make up missed work	2.34	2.07
Offered to put student in special program	2.05	1.66
Offered special tutoring	1.87	1.62
Responses by parents only		
Told student it was the student's decision to make	1.89	†
Told student they were upset	2.03	†
Called a school counselor	2.25	†
Called student's principal or teacher	2.14	†
Offered to arrange outside counseling (with a psychologist or social worker)	1.97	†
Told student it was okay to leave	1.69	†
Punished student for leaving school	1.64	†
Responses by schools only		
Called or visited student's home	†	1.95
Told could return if student did not miss school so often	†	1.70
Told student could not come back	†	1.66
Told could return if student kept a certain grade point average	†	1.59
Expelled or suspended student	†	1.68
Told could return if student followed school discipline rules	†	1.47

† Not applicable.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."

Table B-11. Standard errors for percentage of dropouts from the high school sophomore class of 2002 with given educational expectations and employment status: Spring 2004

Expectations and employment	Percent
Educational expectations in 2004	
Less than high school graduation	0.84
GED or other equivalency only	1.63
High school graduation only	0.76
Some college	1.88
Bachelor's degree	1.71
Advanced degree	1.17
Don't know	1.94
Employment status	
Employed	0.02
Not employed	0.02
Employment hours per week	
Less than 25	2.52
25 to 39	3.01
40	2.80
More than 40	2.71

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."

Table B-12. Standard errors for percentage distribution of high school sophomores, by demographic and family characteristics: 1980, 1990, and 2002

Demographic/family characteristic	1980	1990	2002
Sex			
Male	0.48	0.62	0.53
Female	0.48	0.62	0.53
Race/ethnicity[1]			
American Indian	0.23	0.20	0.20
Asian/Pacific Islander	0.14	0.29	0.26
Black	0.84	0.79	0.66
Hispanic	0.40	0.86	0.87
White	1.07	1.18	0.98
More than one race	—	—	0.23
Age[2]			
15 and below	0.71	0.71	0.52
16	0.65	0.69	0.52
17 and above	0.27	0.41	0.32
Family composition			
Mother and father	0.66	0.69	0.66
Mother or father and guardian	0.34	0.51	0.45
Single parent	0.47	0.53	0.47
Other[3]	0.26	0.23	0.22
Parental highest education			
High school or less	0.76	0.78	0.64
Some college or more	0.76	0.78	0.64

— Not available.

[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

[2] Age as of March 1 of 1980, 1990, or 2002.

[3] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-13. Standard errors for dropout rates of high school sophomores 2 years later, by demographic and family characteristics: 1982, 1992, and 2004

Demographic/family characteristic in sophomore year	1982	1992	2004
Total	0.46	0.40	0.33
Sex			
Male	0.69	0.44	0.44
Female	0.60	0.65	0.39
Race/ethnicity[1]			
American Indian	5.23	6.88	1.87
Asian/Pacific Islander	0.72	1.54	0.59
Black	1.15	1.13	0.93
Hispanic	1.83	1.44	0.94
White	0.51	0.42	0.34
More than one race	—	—	1.40
Age[2]			
15 and below	0.3	0.6	0.29
16	0.5	0.7	0.43
17 and above	2.2	1.9	1.83
Family composition			
Mother and father	0.29	0.49	0.35
Mother or father and guardian	1.14	1.00	0.84
Single parent	0.72	0.92	0.71
Other[3]	1.90	2.06	1.40
Parents' highest educational level			
High school completer or less	0.78	1.03	0.76
Some college or more	0.45	0.29	0.27

— Not available.
[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.
[2] Age as of March 1 of 1980, 1990, or 2002.
[3] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-14. Standard errors for percentage distribution of dropouts, by demographic and family characteristics: 1982, 1992, and 2004

Demographic/family characteristic in sophomore year	1982	1992	2004
Sex			
Male	0.48	3.40	2.06
Female	0.48	3.40	2.06
Race/ethnicity[1]			
American Indian	0.97	1.55	0.33
Asian/Pacific Islander	0.09	1.02	0.38
Black	1.68	2.24	2.11
Hispanic	1.47	2.85	2.61
White	2.34	3.36	2.46
More than one race	—	—	0.87
Age[2]			
15 and below	1.83	2.57	1.78
16	1.73	2.61	2.23
17 and above	1.20	2.21	2.18
Family composition			
Mother and father	1.51	3.24	2.43
Mother or father and guardian	1.08	2.45	1.96
Single parent	1.23	2.58	2.21
Other[3]	0.94	1.07	0.91
Parental highest education			
High school or less	2.32	3.19	2.55
Some college or more	2.32	3.19	2.55

— Not available.

[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.

[2] Age as of March 1 of 1980, 1990, or 2002.

[3] Includes two guardians, single guardian, and respondent to parent survey who lives with student less than half the time.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-15. Standard errors for percentage distribution of high school sophomores, by student-reported maternal educational expectations: 1980, 1990, and 2002

Support factor	1980	1990	2002
Mother's expectation for student's educational attainment[1]			
High school or less	0.43	0.42	0.35
Vocational school	0.40	0.35	†
Some college	0.41	0.43	0.34
Bachelor's degree	0.67	0.64	0.58
Graduate/professional degree	0.57	0.58	0.58
Don't know	0.52	0.29	0.25

† Not applicable.
[1] As reported by the student. Note that vocational school does not exist as a category in 2002 (BYS65A).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-16. Standard errors for dropout rates of high school sophomores 2 years later, by student-reported maternal educational expectations: 1982, 1992, and 2004

Support factor in sophomore year	1982	1992	2004
Mother's expectation for student's educational attainment[1]			
High school or less	1.16	3.98	1.55
Vocational school	0.93	1.13	†
Some college	0.75	0.53	1.32
Bachelor's degree	0.43	0.30	0.39
Graduate/professional degree	0.45	1.02	0.42
Don't know	0.67	1.53	1.54

† Not applicable.
[1] As reported by the student. Note that vocational school does not exist as a category in 2002 (BYS65A).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-17. Standard errors for percentage distribution of dropouts, by student-reported maternal educational expectations: 1982, 1992, and 2004

Support factor in sophomore year	1982	1992	2004
Mother's expectation for student's educational attainment[1]			
High school or less	1.50	3.81	2.15
Vocational school	1.07	1.51	†
Some college	0.96	1.44	1.89
Bachelor's degree	1.24	2.42	2.50
Graduate/professional degree	1.08	3.31	2.45
Don't know	1.44	1.92	1.68

† Not applicable.
[1] As reported by the student. Note that vocational school does not exist as a category in 2002 (BYS65A).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-18. Standard errors for percentage distribution of high school sophomores, by time use and coming to class prepared: 1980, 1990, and 2002

Engagement factor	1980	1990	2002
Hours of TV or video per day on weekdays			
Less than 5 hours	0.59	0.45	0.47
5 or more hours	0.59	0.45	0.47
Hours of work per week			
20 hours or less	0.54	0.60	0.38
Over 20	0.54	0.60	0.38
Hours of homework per week[1]			
None	0.33	0.40	0.31
1–10	0.46	0.58	0.54
11 or more	0.40	0.47	0.56
Attends class without books			
Often/sometimes	0.36	0.31	0.44
Seldom/never	0.36	0.31	0.44
Attends class without pencil/paper			
Often/sometimes	0.46	0.38	0.46
Seldom/never	0.46	0.38	0.46

[1] Refers to homework done out of school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-19. Standard errors for dropout rates of high school sophomores 2 years later, by time use and coming to class prepared: 1982, 1992, and 2004

Engagement factor in sophomore year	1982	1992	2004
Hours of TV or video per day on weekdays			
Less than 5 hours	0.32	0.37	0.33
5 or more hours	0.58	1.90	0.76
Hours of work per week			
20 hours or less	0.31	0.43	0.32
Over 20	0.77	0.91	0.96
Hours of homework per week[1]			
None	1.90	2.15	1.35
1–10	0.29	0.36	0.38
11 or more	1.08	0.48	0.49
Attends class without books			
Often/sometimes	2.00	2.14	0.84
Seldom/never	0.40	0.55	0.33
Attends class without pencil/paper			
Often/sometimes	1.33	1.40	0.82
Seldom/never	0.41	0.58	0.33

[1] Refers to homework done out of school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-20. Standard errors for percentage distribution of dropouts, by time use and coming to class prepared: 1982, 1992, and 2004

Engagement factor in sophomore year	1982	1992	2004
Hours of TV or video per day on weekdays			
Less than 5 hours	1.45	3.00	2.25
5 or more hours	1.45	3.00	2.25
Hours of work per week			
20 hours or less	1.51	3.06	1.61
Over 20	1.51	3.06	1.61
Hours of homework per week[1]			
None	1.51	2.61	1.72
1–10	1.64	2.72	2.24
11 or more	0.80	1.14	1.75
Attends class without books			
Often/sometimes	1.35	1.61	2.16
Seldom/never	1.35	1.61	2.16
Attends class without pencil/paper			
Often/sometimes	1.50	1.55	2.09
Seldom/never	1.50	1.55	2.09

[1] Refers to homework done out of school.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002–04."

Table B-21. Standard errors for percentage distribution of high school sophomores, by academic achievement factors: 1980, 1990, and 2002

Achievement factor	1980	1990	2002
Math test quarter			
Lowest	0.72	0.73	0.72
Middle two	0.63	0.67	0.57
Highest	0.68	0.72	0.66
High school credits earned by end of sophomore year[1]			
Below 5	0.37	0.22	0.08
5 to less than 10	0.90	0.62	0.21
10 or more	1.01	0.68	0.24

[1] Credits include courses taken through August in the summer following sophomore year.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Table B-22. Standard errors for dropout rates of high school sophomores 2 years later, by academic achievement factors: 1982, 1992, and 2004

Achievement factor in sophomore year	1982	1992	2004
Math test quarter			
Lowest	0.79	1.15	0.81
Middle two	0.36	0.74	0.43
Highest	0.26	0.22	0.26
High school credits earned by end of sophomore year[1]			
Below 5	4.23	6.18	8.17
5 to less than 10	1.19	1.92	3.24
10 or more	0.36	0.27	0.25

[1] Credits include courses taken through August in the summer following sophomore year.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Table B-23. Standard errors for percentage distribution of dropouts, by academic achievement factors: 1982, 1992, and 2004

Achievement factor in sophomore year	1982	1992	2004
Math test quarter			
Lowest	1.73	2.76	2.41
Middle two	1.72	2.80	2.30
Highest	0.84	0.62	1.02
High school credits earned by end of sophomore year[1]			
Below 5	2.05	2.65	1.17
5 to less than 10	2.41	3.08	2.22
10 or more	2.14	3.21	2.22

[1] Credits include courses taken through August in the summer following sophomore year.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Table B-24. Standard errors for average sophomore math test score, academic credits earned, and academic grade point average (GPA) for dropouts and non-dropouts: 1982, 1992, and 2004

Achievement factor in sophomore year	1982	1992	2004
Average math test score[1]			
Dropouts	0.36	0.58	0.54
Non-dropouts	0.18	0.21	0.22
Average academic credits earned[2]			
Dropouts	0.16	0.16	0.19
Non-dropouts	0.08	0.05	0.05
Average academic GPA[2]			
Dropouts	0.04	0.05	0.05
Non-dropouts	0.01	0.02	0.01

[1] Math test score is the item-response theory (IRT) estimated number correct on a 58-item test equated across the three cohorts.
[2] Credits and GPA include courses taken through August in the summer following sophomore year.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year, First Follow-up and High School Transcript Study 1980–82"; National Education Longitudinal Study of 1988 (NELS:88), "First Follow-up, Second Follow-up and High School Transcript Study, 1990–92"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year, First Follow-up and High School Transcript Study, 2002–04."

Table B-F1. Standard errors for figure 1: Cohort, status, and event dropout rates: 1982, 1992, and 2004

Year	Cohort dropout rate	Status dropout rate	Event dropout rate
1982	0.46	0.27	0.34
1992	0.40	0.28	0.35
2004	0.33	0.23	0.30

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. For late high school cohort dropout rate: High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B:80), "Base Year and First Follow-up, 1980-1982"; National Education Longitudinal Study of 1988 (NELS:88), "First and Second Follow-up, 1990-1992"; and Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-up, 2002-2004." For status and event dropout rates: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1982, 1992, and 2004.

Table B-F2. Standard errors for figure 2: Percentage distribution of the 2006 completion status of spring 2002 high school sophomores who were in-school/early completers or dropouts in spring 2004

	Status in 2006				
Status in 2004	Summer 2004 or earlier graduate	Fall 2004 or later graduate[1]	GED/certificate of attendance	Working toward diploma or equivalency	Dropout
In-school or early completer in spring 2004	0.35	0.17	0.17	0.14	0.15
Dropout	1.41	1.15	2.25	1.89	2.30

[1] Includes students with unknown graduation dates (less than 1 percent of the sample).
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Educational Longitudinal Study of 2002 (ELS:2002), “Base Year through Second Follow-up, Student Surveys and High School Transcripts Study, 2002–06.”

Table B-F3. Standard errors for figure 3: Percentage of dropouts from the high school sophomore class of 2002 reporting reasons for leaving school, by race/ethnicity

	Reason left		
Race/ethnicity[1]	School related	Family related	Employment related
American Indian	0.00	‡	‡
Asian/Pacific Islander	6.03	7.14	8.31
Black	4.63	4.12	4.17
Hispanic, any race	2.86	4.51	4.11
White	2.55	3.28	3.65
More than one race	7.68	8.89	8.55

‡ Reporting standards not met.
[1] Asian/Pacific Islander includes Native Hawaiian, Black includes African American, and Hispanic includes Latino. All race categories exclude Hispanic or Latino origin.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. Education Longitudinal Study of 2002 (ELS:2002), "Base Year and First Follow-Up, Student Surveys, 2002–04," and "Not Currently in School Survey, 2004."